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(12) **United States Patent**
DeMarco et al.

(10) **Patent No.: US 12,020,530 B2**
(45) **Date of Patent: Jun. 25, 2024**

(54) **GAMING MACHINES AND METHOD FOR DISPLAYING BACKGROUNDS ON MULTIPLE GAMING MACHINES**

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(73) Assignee: **Aristocrat Technologies Australia Pty Limited**, North Ryde (AU)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 170 days.

(21) Appl. No.: **17/818,688**

(22) Filed: **Aug. 9, 2022**

(65) **Prior Publication Data**

US 2022/0383695 A1 Dec. 1, 2022

Related U.S. Application Data

(63) Continuation of application No. 17/083,199, filed on Oct. 28, 2020, now Pat. No. 11,430,288, which is a continuation of application No. 16/433,470, filed on Jun. 6, 2019, now Pat. No. 10,839,639.

(60) Provisional application No. 62/725,554, filed on Aug. 31, 2018.

(51) **Int. Cl.**
G07F 17/32 (2006.01)

(52) **U.S. Cl.**
CPC ***G07F 17/3213*** (2013.01); ***G07F 17/3227*** (2013.01)

(58) **Field of Classification Search**
None
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

D396,888	S	8/1998	Hayashi
D415,211	S	10/1999	Yamaguchi
D435,068	S	12/2000	Muraki
D435,270	S	12/2000	Healy
6,319,124	B1	11/2001	Baerlocher

(Continued)

OTHER PUBLICATIONS

Australian Search Report for AU2017202972, dated Dec. 5, 2017, 3 pages.

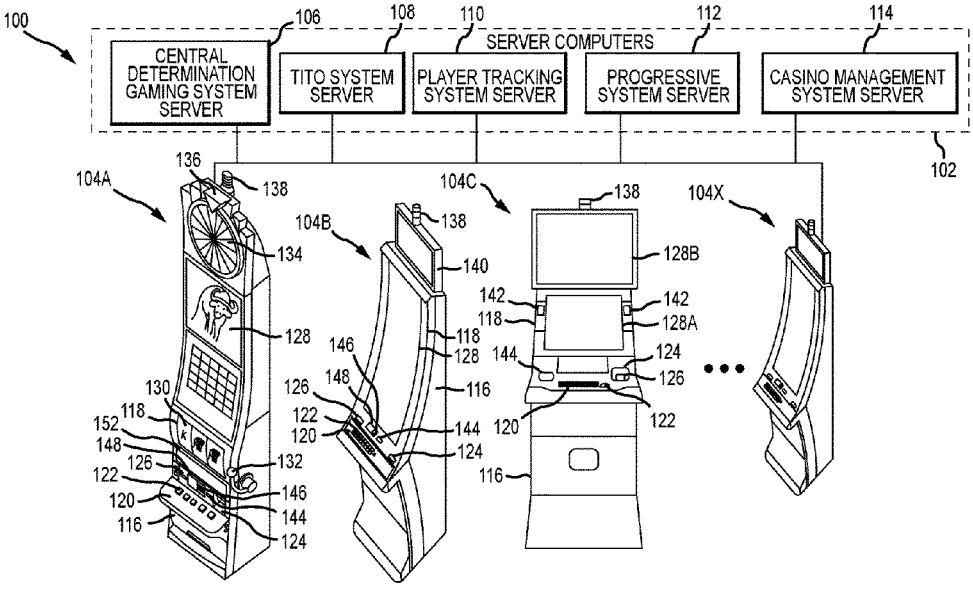
(Continued)

Primary Examiner — Ronald Laneau
(74) *Attorney, Agent, or Firm* — Armstrong Teasdale LLP

(57) **ABSTRACT**

A system is provided. The system includes a plurality of electronic gaming machines, each including a display and a controller. A first electronic gaming machine and a second electronic gaming machine are positioned adjacent to each other laterally. A first display associated with the first electronic gaming machine and a second display associated with the second electronic gaming machine are designed to line up horizontally. A controller associated with at least one of the first electronic gaming machine and the second electronic gaming machine is programmed to control the first display and the second display. The first display and the second display each display a game display area and a background area. The controller is programmed to: a) cause an image to be displayed on the first display; and b) generate and cause to be displayed an animation of the image moving from the first display to the second display.

20 Claims, 26 Drawing Sheets



(56) **References Cited**

U.S. PATENT DOCUMENTS

D572,770	S	7/2008	Seelig	
7,708,640	B2	5/2010	Burak	
8,066,563	B1	11/2011	Schultz	
8,075,389	B1	12/2011	Schultz	
D685,033	S	6/2013	Wudtke	
8,506,380	B2	8/2013	Hughes	
D694,833	S	12/2013	Landau	
D714,875	S	10/2014	Wudtke	
D715,364	S	10/2014	Wudtke	
D740,887	S	10/2015	Randazzo	
D740,888	S	10/2015	Depalma	
D742,975	S	11/2015	Myers	
9,569,914	B2	2/2017	Kono	
9,646,458	B2	5/2017	Zielinski	
9,728,031	B2	8/2017	Schultz	
9,836,922	B2	12/2017	Jackson	
D812,149	S	3/2018	Castro	
D819,747	S	6/2018	Castro	
D832,356	S	10/2018	Castro	
D843,461	S	3/2019	Castro	
D843,464	S	3/2019	Castro	
D843,465	S	3/2019	Castro	
D843,466	S	3/2019	Castro	
D843,482	S	3/2019	Holland	
D850,536	S	6/2019	Stair	
D854,621	S	7/2019	Calhoun	
D859,335	S	9/2019	D'Ambrosio	
D866,667	S	11/2019	Stair	
D866,668	S	11/2019	Ditton	
D868,714	S	12/2019	Hodgson	
D868,715	S	12/2019	Hodgson	
D868,716	S	12/2019	Hodgson	
D868,717	S	12/2019	Hodgson	
D868,718	S	12/2019	Hodgson	
D868,719	S	12/2019	Hodgson	
D870,820	S	12/2019	Urban	
D871,506	S	12/2019	Castro	
D871,507	S	12/2019	Urban	
D872,190	S	1/2020	Zedell, Jr.	
D873,821	S	1/2020	Song	
D873,921	S	1/2020	Bernard	
D877,811	S	3/2020	Bernard	
D878,477	S	3/2020	Bernard	
10,580,252	B2	3/2020	Whelan	
10,600,280	B2	3/2020	Akita	
D880,605	S	4/2020	Bussey	
D882,280	S	4/2020	Yang	
D882,699	S	4/2020	Bernard	
D882,700	S	4/2020	Wudtke	
D883,393	S	5/2020	Bernard	
D887,495	S	5/2020	Bernard	
D888,833	S	6/2020	Hodgson	
D888,834	S	6/2020	Lee	
D890,265	S	7/2020	Johnson	
D895,617	S	9/2020	Little	
10,854,494	B2	12/2020	Charbonnier	
2003/0064773	A1	4/2003	Baerlocher	
2003/0073484	A1	4/2003	Jo	
2004/0053677	A1	3/2004	Hughs-Baird	
2004/0178579	A1	9/2004	Lowell	
2005/0056999	A1	3/2005	Roemer	
2005/0075162	A1	4/2005	Duhamel	
2006/0121978	A1	6/2006	Hornik	
2006/0246977	A1	11/2006	Cannon	
2006/0258419	A1	11/2006	Winkler	
2008/0032767	A1	2/2008	Okada	
2008/0176644	A1	7/2008	Okada	
2009/0054129	A1	2/2009	Yoshimura	
2009/0104954	A1	4/2009	Weber	
2009/0111566	A1	4/2009	Naicker	
2009/0111569	A1	4/2009	Yoshizawa	
2010/0048284	A1	2/2010	Jaffe	
2012/0034967	A1	2/2012	Owen	
2012/0302315	A1	11/2012	Ikeya	
2013/0109458	A1	5/2013	Demsetz	
2013/0217464	A1	8/2013	Terdina	
2013/0278875	A1	10/2013	Kim	
2014/0066198	A1	3/2014	Robbins	
2014/0080570	A1	3/2014	Watkins	
2014/0092356	A1	4/2014	Ahn	
2014/0375936	A1	12/2014	Park	
2015/0031436	A1	1/2015	Suda	
2015/0036073	A1	2/2015	Im	
2015/0116625	A1	4/2015	Hwang	
2016/0093143	A1	3/2016	Lamb	
2016/0110907	A1*	4/2016	Kelly	G06F 3/1438 345/473
2017/0032625	A1	2/2017	Nakamura	
2018/0071631	A1	3/2018	Zoloto	
2018/0342129	A1	11/2018	Wudtke	
2019/0102974	A1	4/2019	Bussey	
2020/0098227	A1	3/2020	Hendricks	
2020/0118383	A1	4/2020	Hodgson	
2020/0357225	A1*	11/2020	Meyer	G07F 17/3213
2021/0043035	A1*	2/2021	DeMarco	G07F 17/3213
2021/0366243	A1*	11/2021	Fong	G07F 17/3216
2023/0326298	A1*	10/2023	Zeldin	G07F 17/3213 463/20

OTHER PUBLICATIONS

Australian Examination Report for AU2018274893, dated Jan. 17, 2020,2 pages.

Office Action date May 21, 2020 for U.S. Appl. No. 16/433,470 (pp. 1-7).

Notice of Allowance dated Jun. 19, 2020 for U.S. Appl. No. 16/547,154 (pp. 1-10).

Office Action dated Jun. 26, 2020 for U.S. Appl. No. 16/743,595 (pp. 1-6).

Notice of Allowance dated Jul. 27, 2020 for U.S. Appl. No. 16/743,595 (pp. 1-9).

Notice of Allowance dated Sep. 30, 2020 for U.S. Appl. No. 16/433,470 (pp. 1-5).

Office Action dated Nov. 12, 2020 for U.S. Appl. No. 29/661,963 (pp. 1-11).

"Samsung Round Screen", posted Apr. 6, 2015 [Online], [retrieved Nov. 3, 2020], Retrieved from Internet, https://audioxpress.com/news/Samsung-Rounds-out-the-Home-Theater-Experience-with-Curved-Soundbars.

"OLED Screens", posted Jan. 6, 2016 [Online], [retrieved Nov. 4, 2020], Retrieved from Internet, https://finance.yahoo.com/news/lg-s-see-through-rollable-1337718221365302.html.

Office Action dated Jun. 21, 2021 for U.S. Appl. No. 29/661,963 (pp. 1-7).

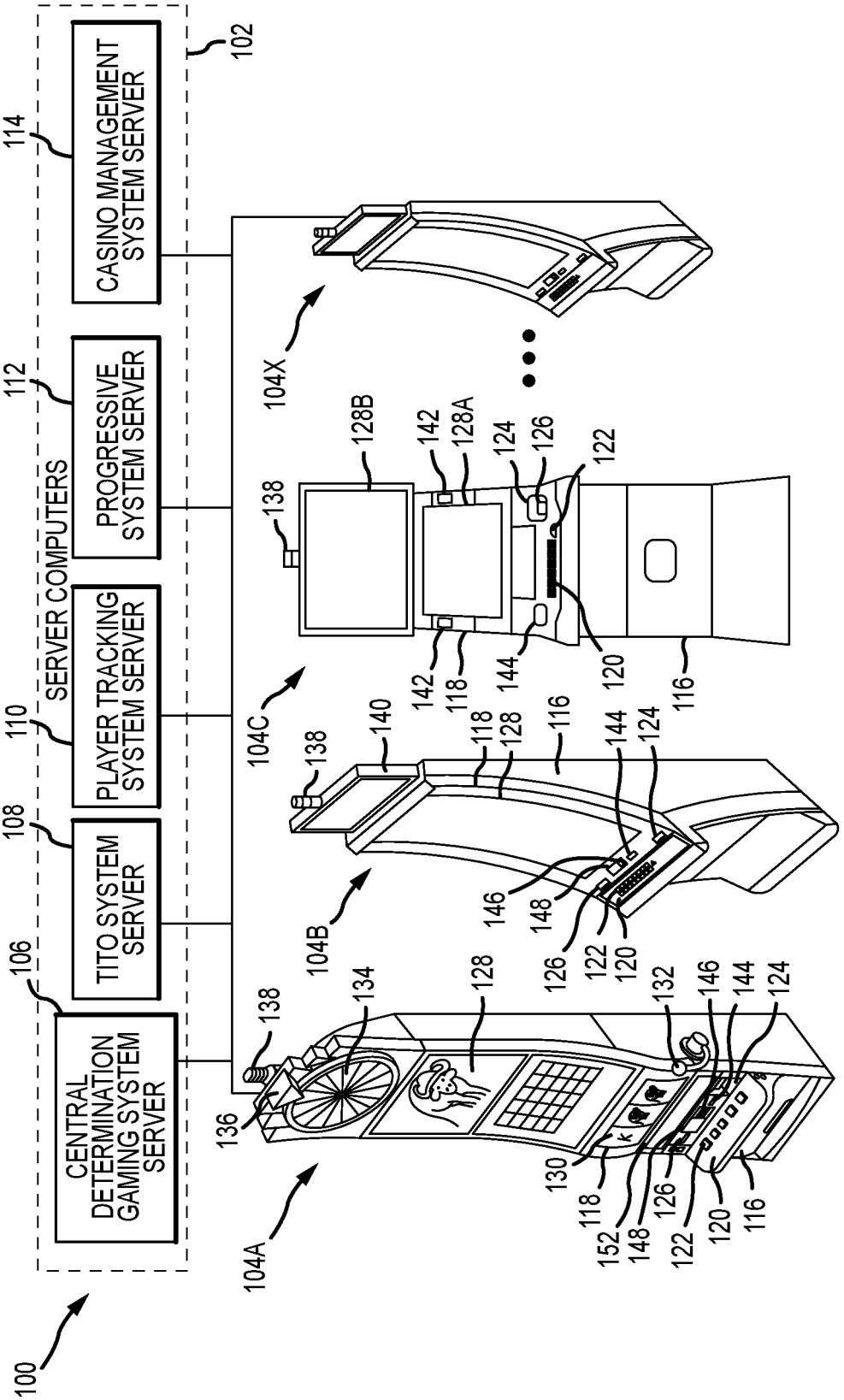
Office Action dated Dec. 24, 2021 for U.S. Appl. No. 29/661,963 (pp. 1-6).

Office Action (Non-Final Rejection) dated Mar. 28, 2022 for U.S. Appl. No. 17/083,199 (pp. 1-7).

Notice of Allowance dated Apr. 27, 2022 for U.S. Appl. No. 29/661,963 (pp. 1-5).

Office Action (Notice of Allowance and Fees Due (PTOL-85)) dated May 25, 2022 for U.S. Appl. No. 17/083,199 (pp. 1-5).

* cited by examiner


100
SERVER COMPUTERS
102
CENTRAL DETERMINATION GAMING SYSTEM SERVER
106
TITO SYSTEM SERVER
108
PLAYER TRACKING SYSTEM SERVER
110
PROGRESSIVE SYSTEM SERVER
112
CASINO MANAGEMENT SYSTEM SERVER
114
104A
104B
104C
104X
116
118
120
122
124
126
128
128A
128B
130
132
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136
138
140
142
144
146
148
152

FIG. 1

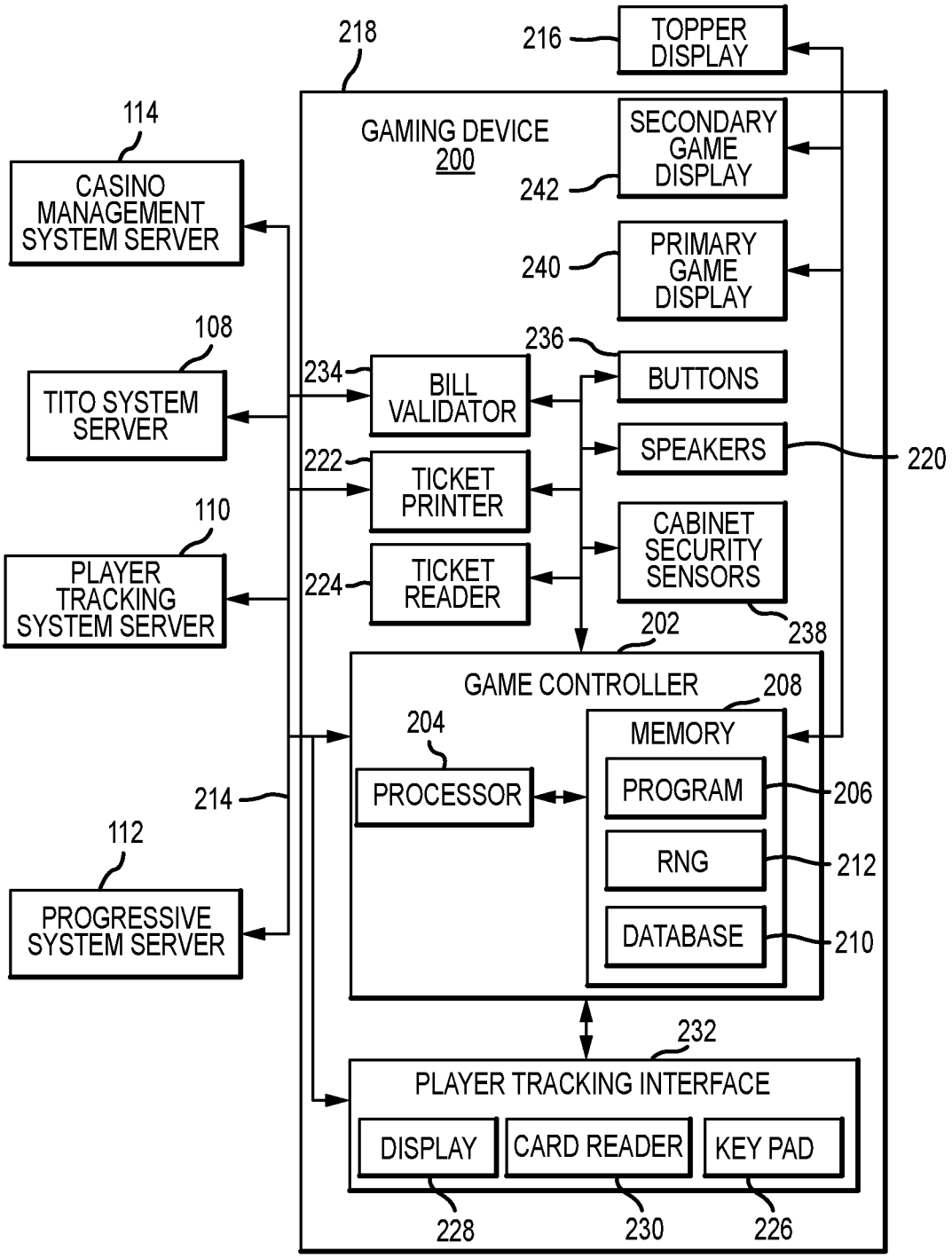
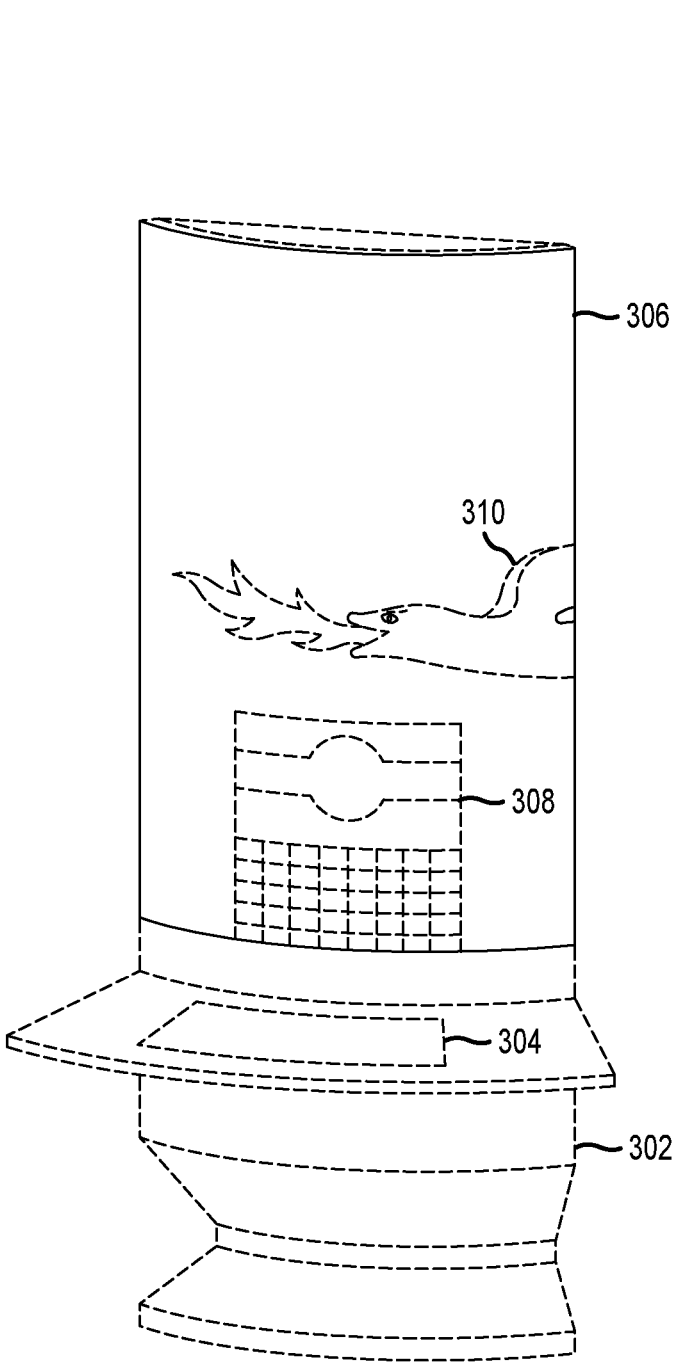

218
216
TOPPER DISPLAY
GAMING DEVICE
200
SECONDARY GAME DISPLAY
242
PRIMARY GAME DISPLAY
240
114
CASINO MANAGEMENT SYSTEM SERVER
108
TITO SYSTEM SERVER
234
BILL VALIDATOR
236
BUTTONS
SPEAKERS
220
222
TICKET PRINTER
110
PLAYER TRACKING SYSTEM SERVER
224
TICKET READER
CABINET SECURITY SENSORS
238
202
GAME CONTROLLER
208
204
MEMORY
PROCESSOR
PROGRAM
206
214
RNG
212
112
PROGRESSIVE SYSTEM SERVER
DATABASE
210
232
PLAYER TRACKING INTERFACE
DISPLAY
CARD READER
KEY PAD
228
230
226

FIG. 2



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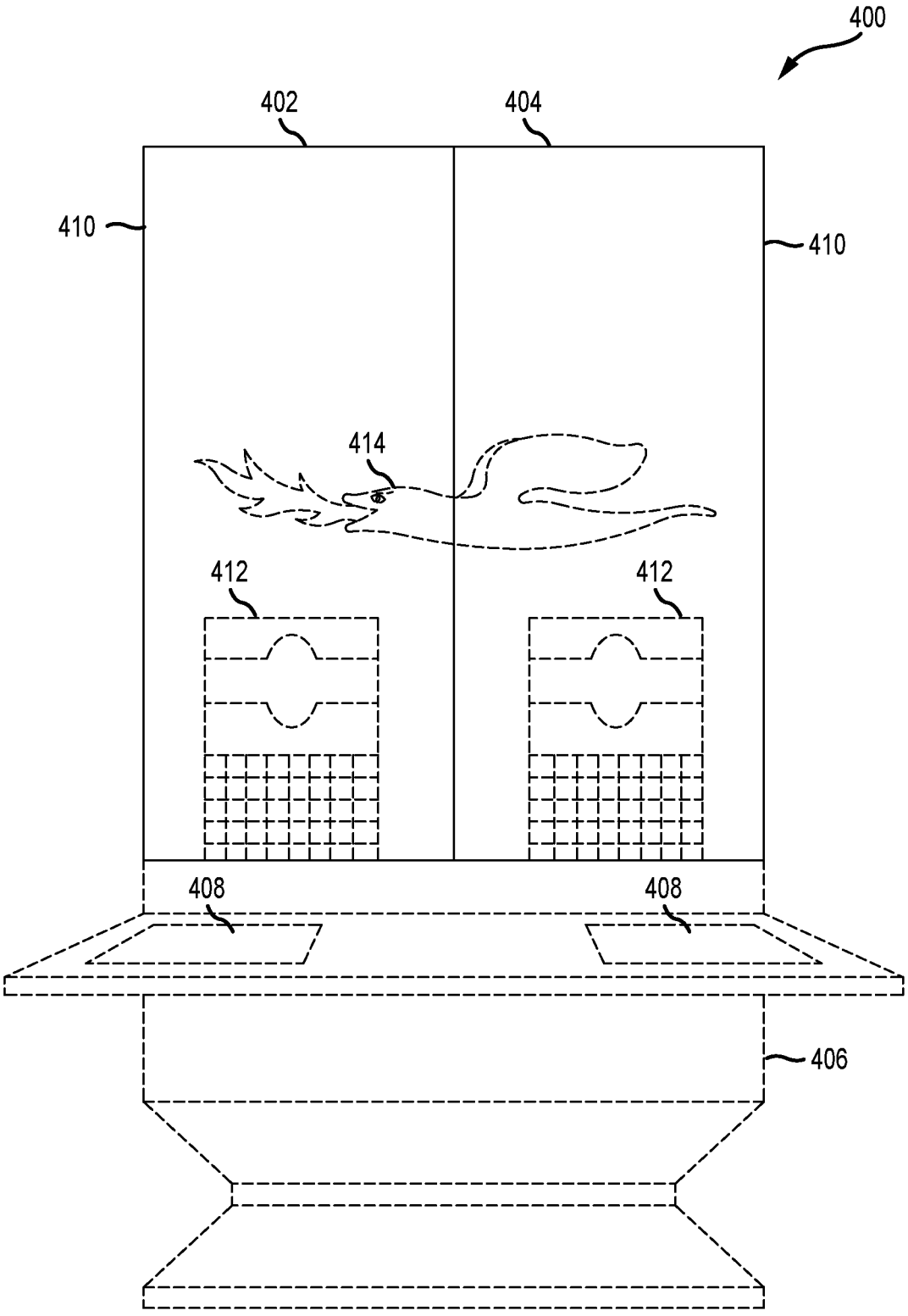

FIG. 4

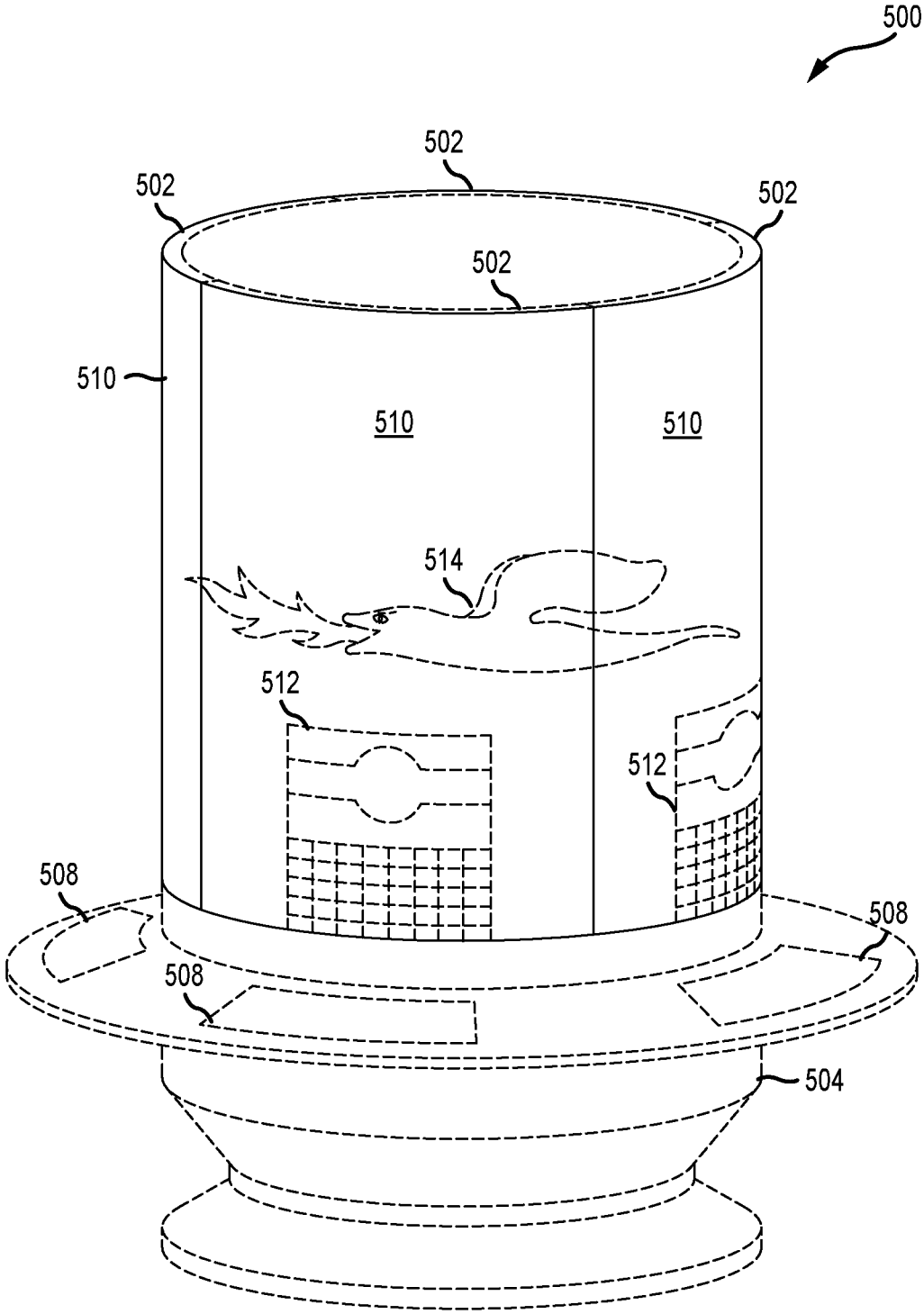

FIG. 5

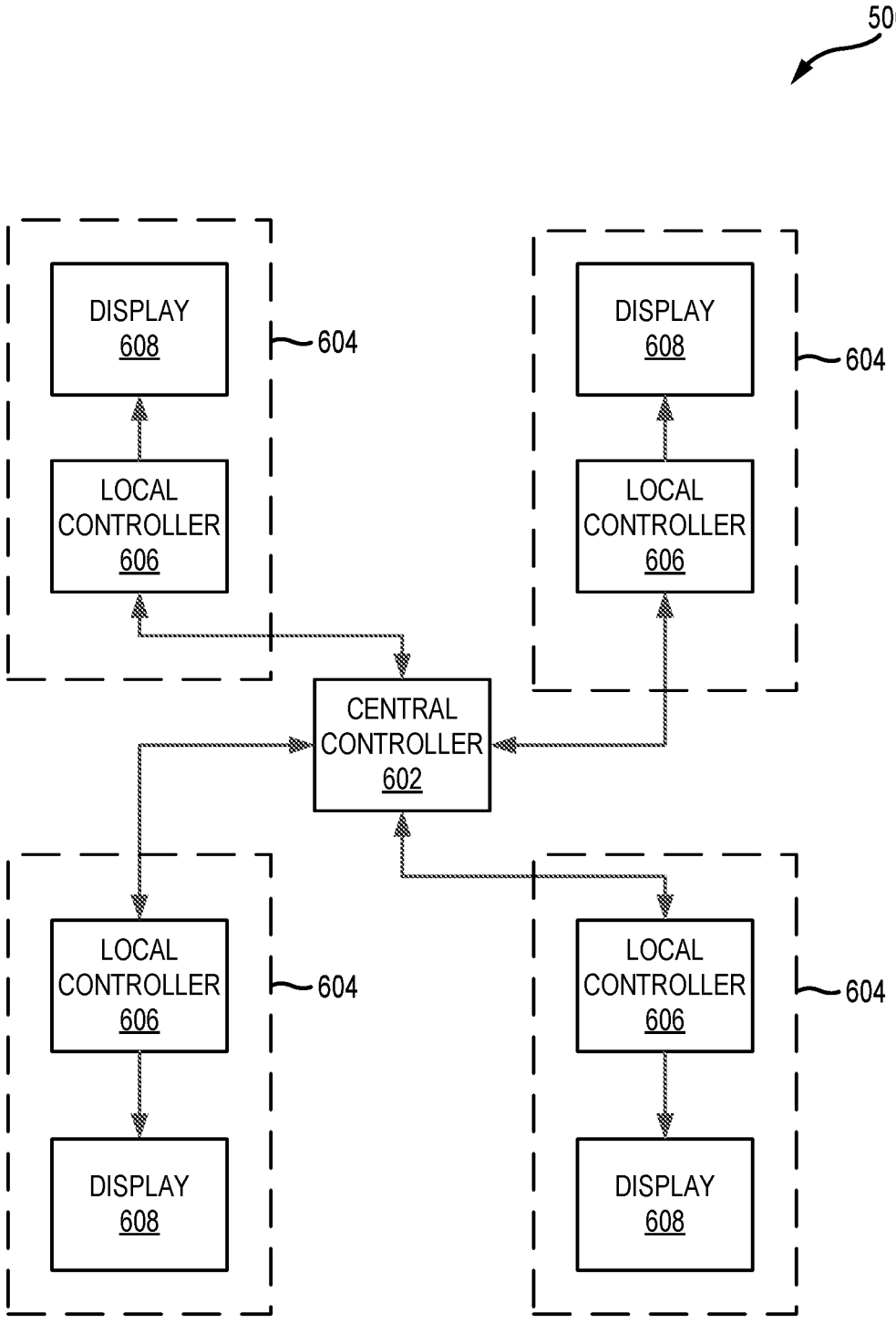
500
DISPLAY
608
604
LOCAL
CONTROLLER
606
DISPLAY
608
604
LOCAL
CONTROLLER
606
CENTRAL
CONTROLLER
602
LOCAL
CONTROLLER
606
604
DISPLAY
608
LOCAL
CONTROLLER
606
604
DISPLAY
608

FIG. 6

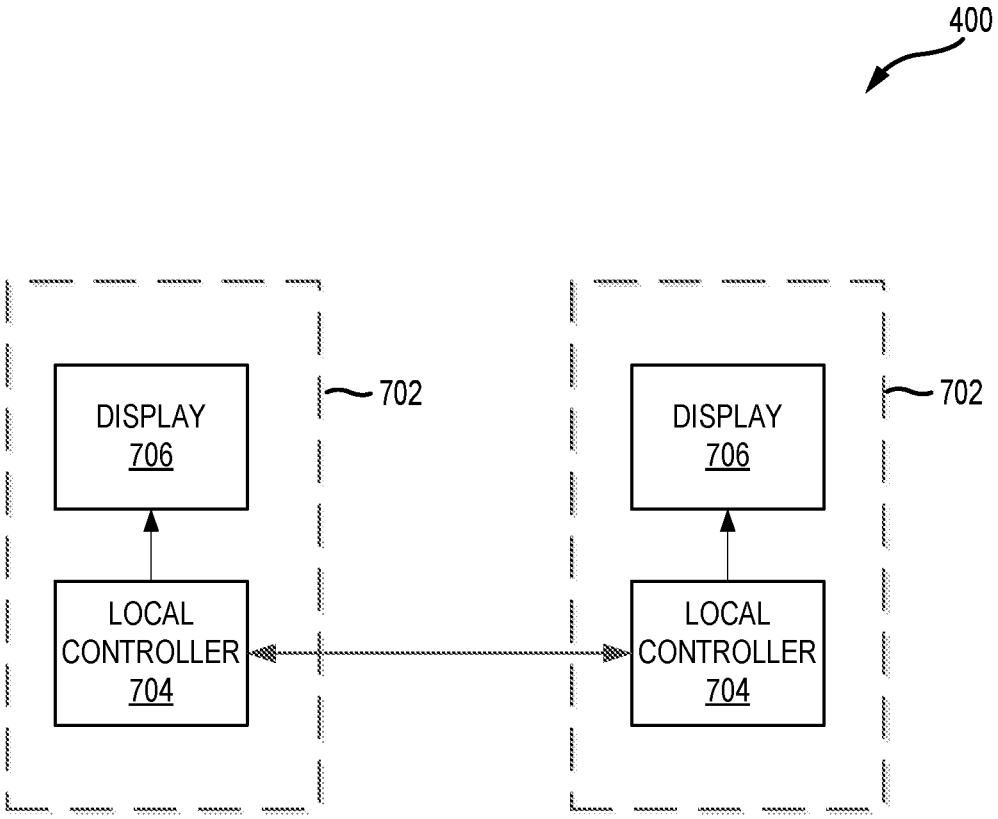
400
DISPLAY
706
LOCAL
CONTROLLER
704
702
DISPLAY
706
LOCAL
CONTROLLER
704
702

FIG. 7

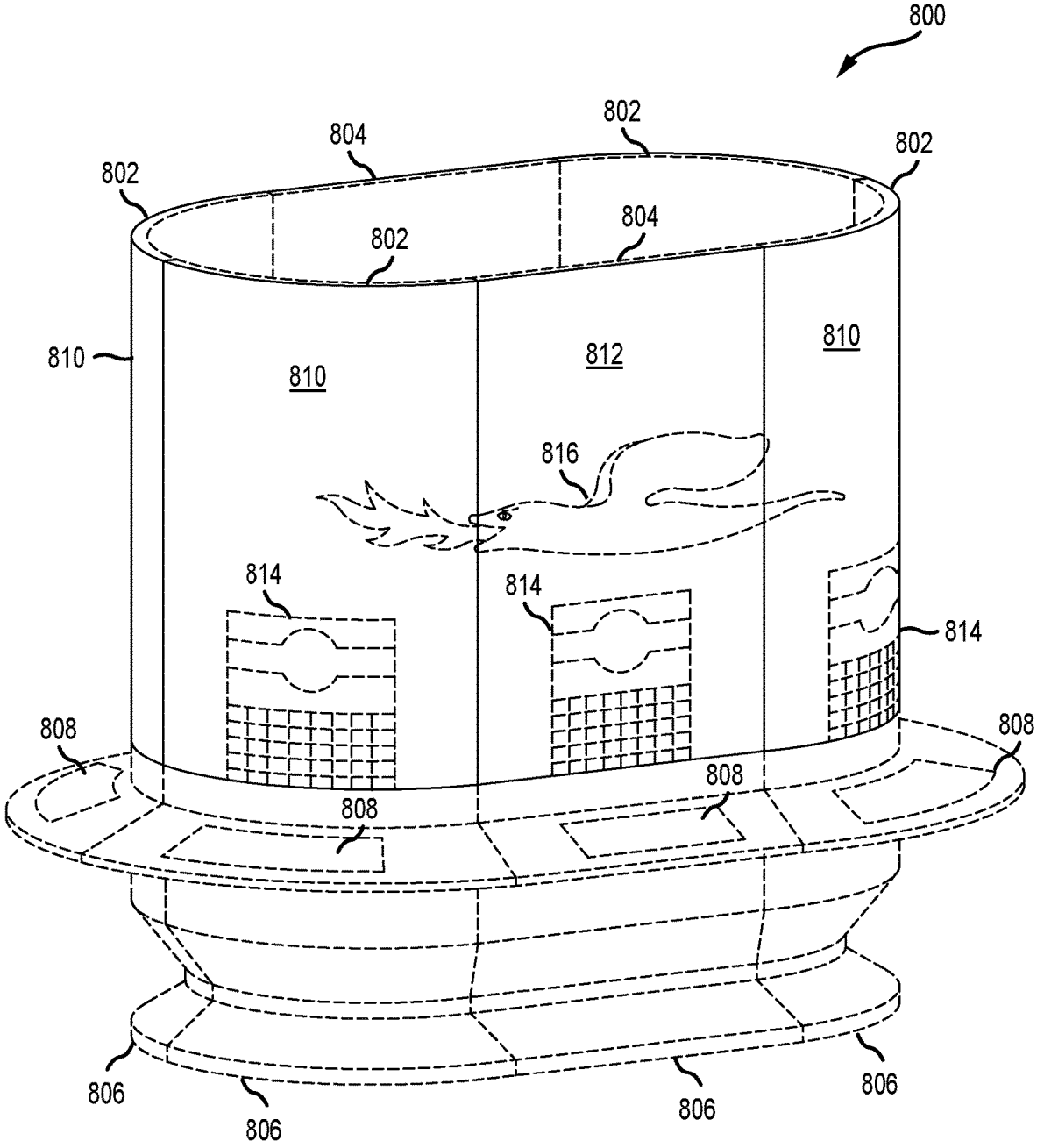
800
802
804
802
802
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FIG. 8

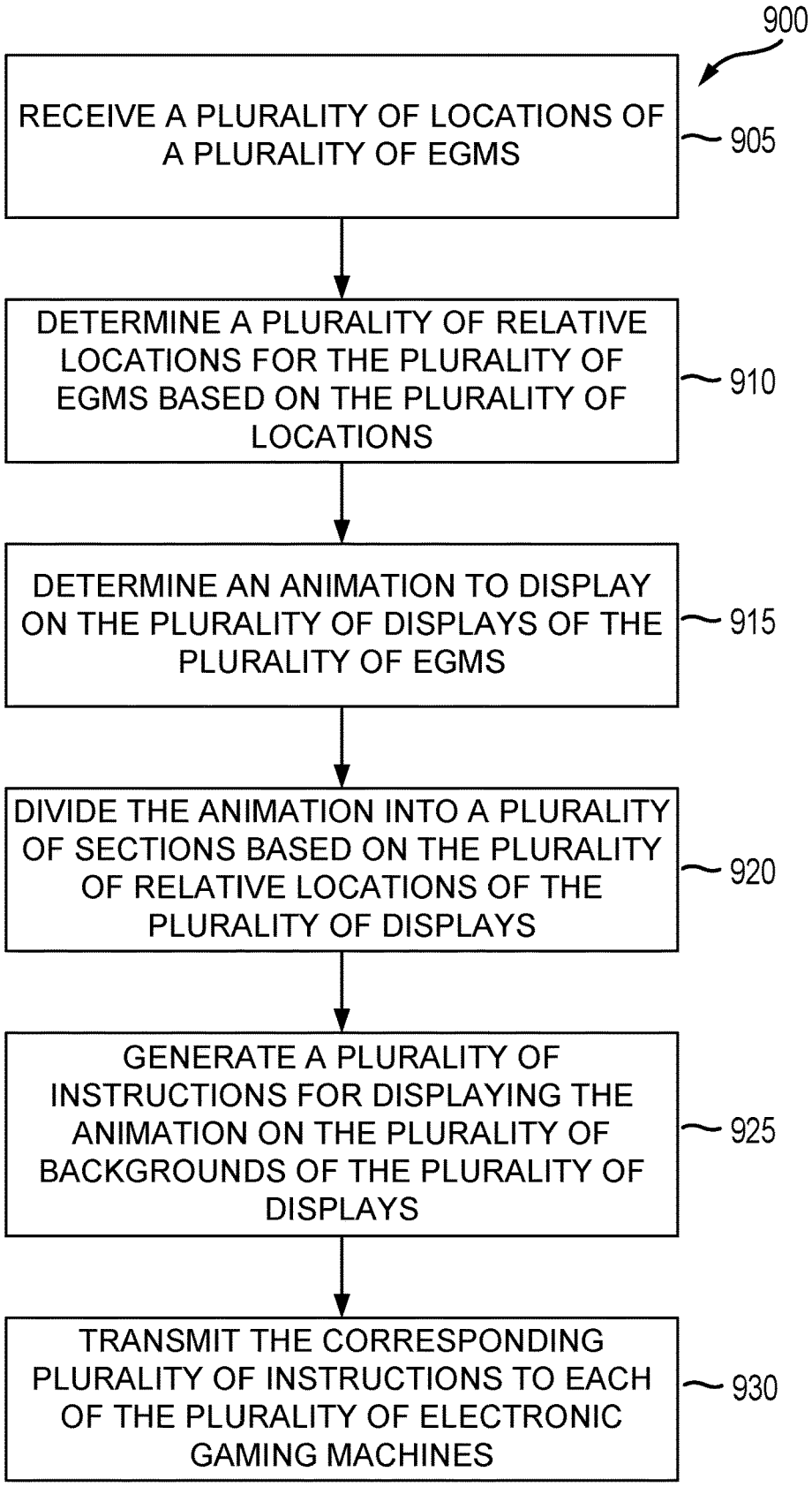
900
RECEIVE A PLURALITY OF LOCATIONS OF A PLURALITY OF EGMS
905
DETERMINE A PLURALITY OF RELATIVE LOCATIONS FOR THE PLURALITY OF EGMS BASED ON THE PLURALITY OF LOCATIONS
910
DETERMINE AN ANIMATION TO DISPLAY ON THE PLURALITY OF DISPLAYS OF THE PLURALITY OF EGMS
915
DIVIDE THE ANIMATION INTO A PLURALITY OF SECTIONS BASED ON THE PLURALITY OF RELATIVE LOCATIONS OF THE PLURALITY OF DISPLAYS
920
GENERATE A PLURALITY OF INSTRUCTIONS FOR DISPLAYING THE ANIMATION ON THE PLURALITY OF BACKGROUNDS OF THE PLURALITY OF DISPLAYS
925
TRANSMIT THE CORRESPONDING PLURALITY OF INSTRUCTIONS TO EACH OF THE PLURALITY OF ELECTRONIC GAMING MACHINES
930

FIG. 9

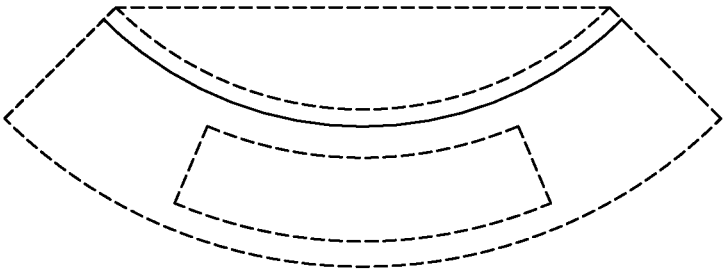

FIG. 10

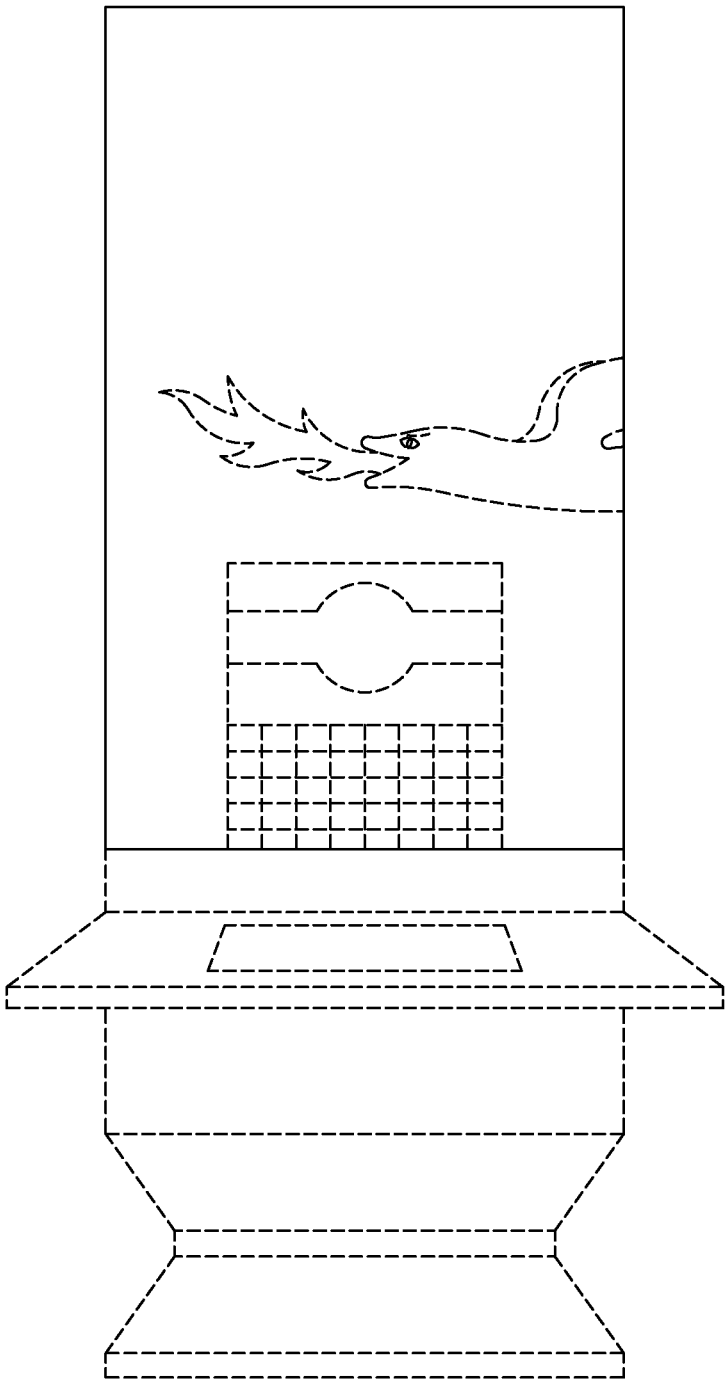

FIG. 11

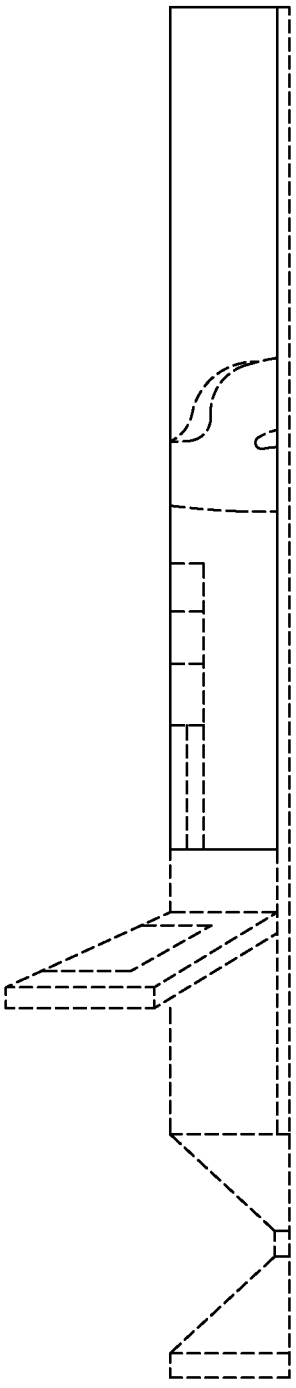

FIG. 12

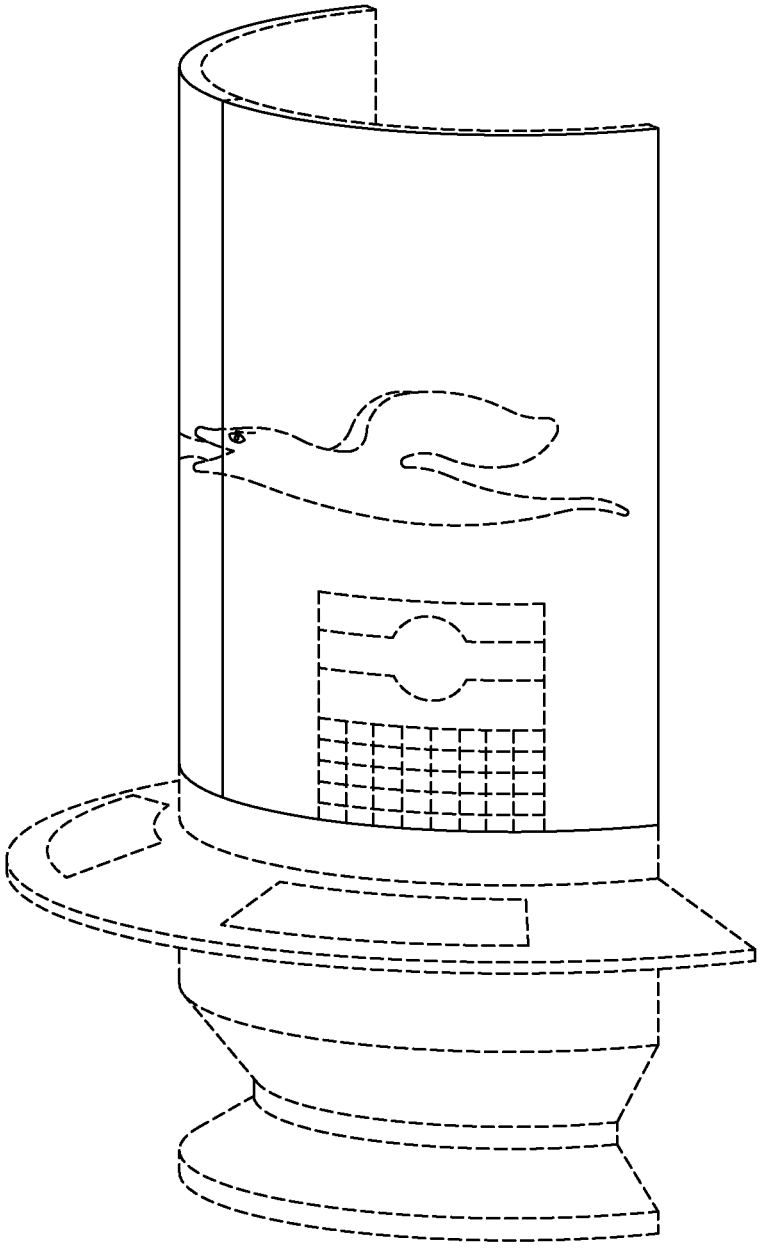

FIG. 13

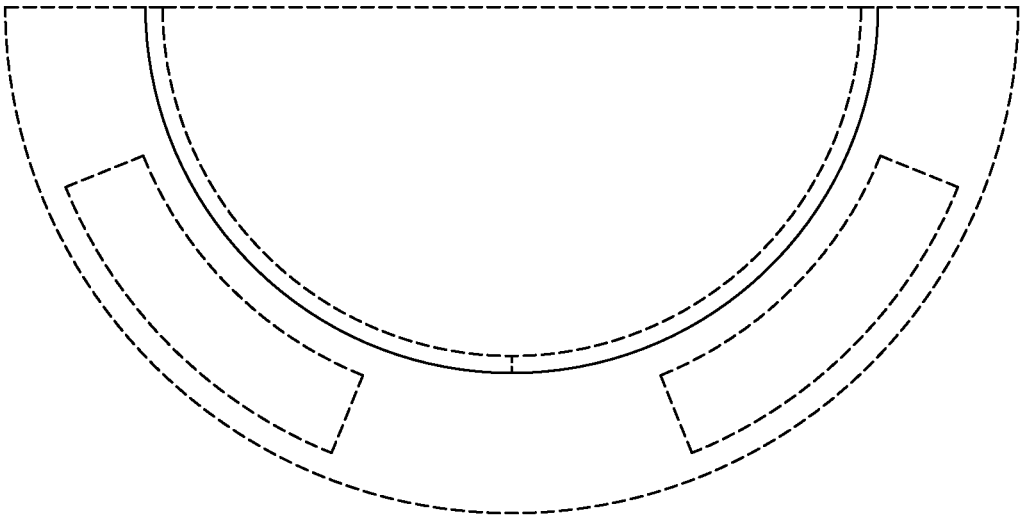

FIG. 14

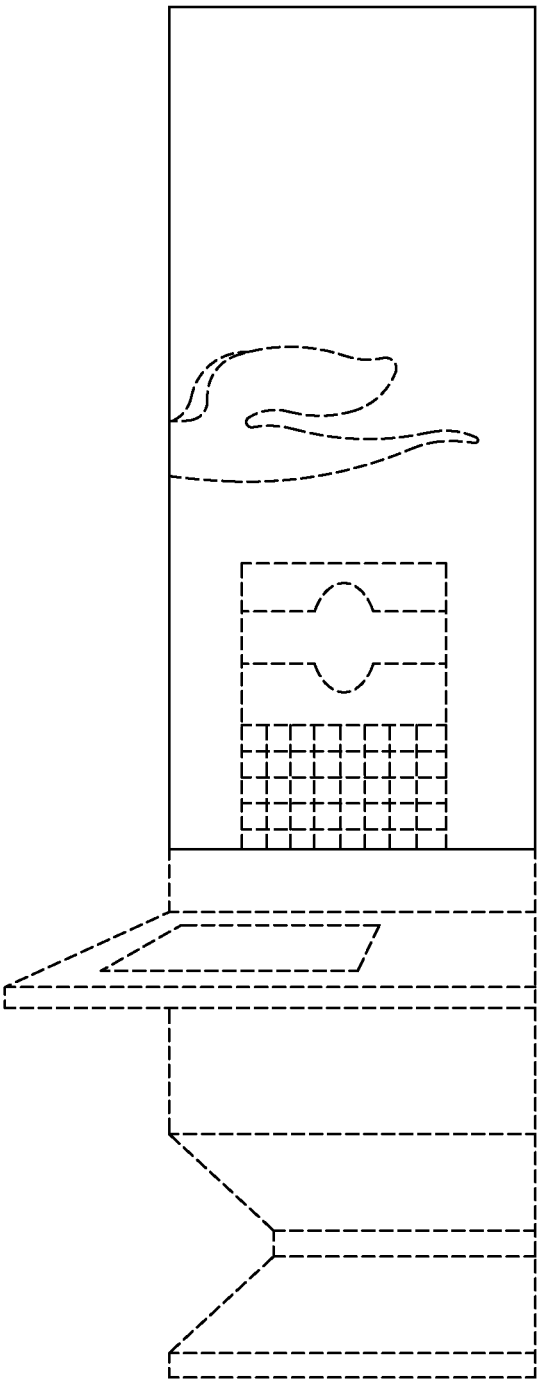

FIG. 15

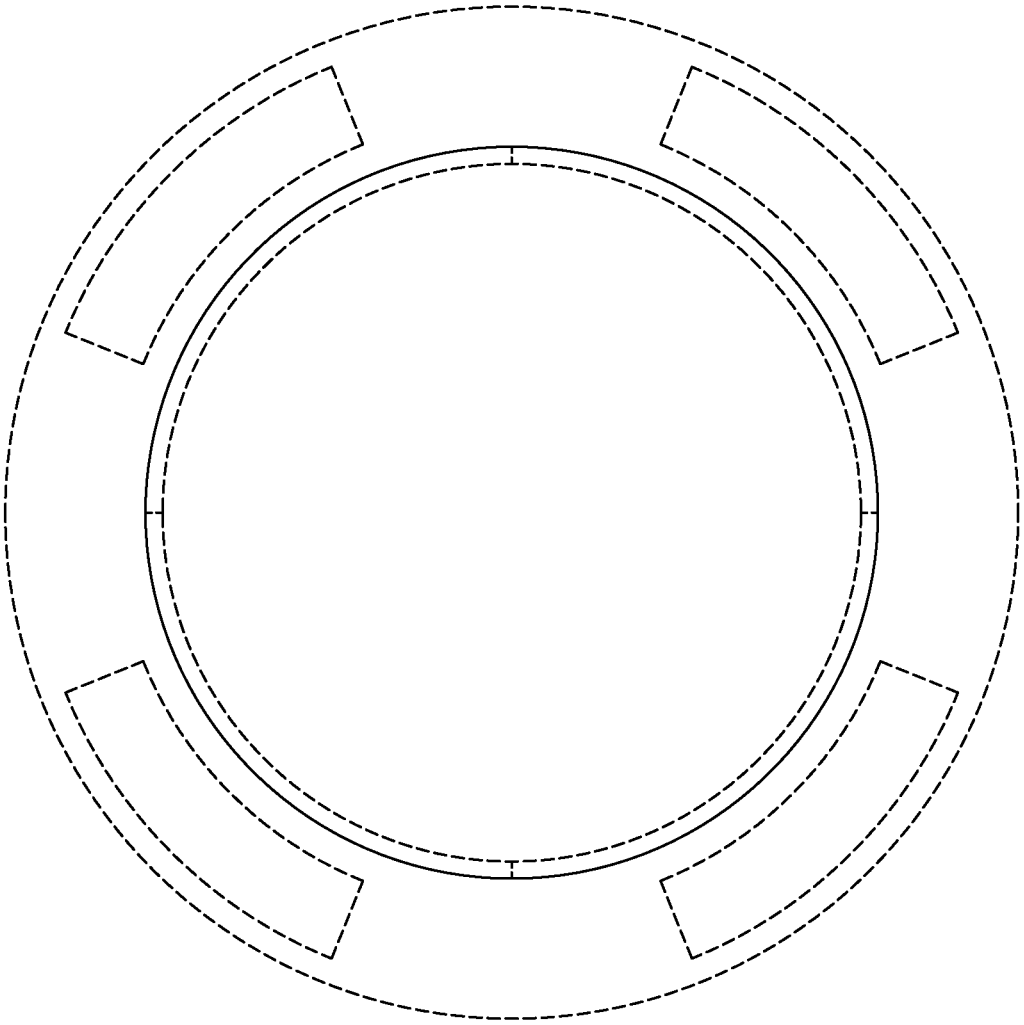

FIG. 16

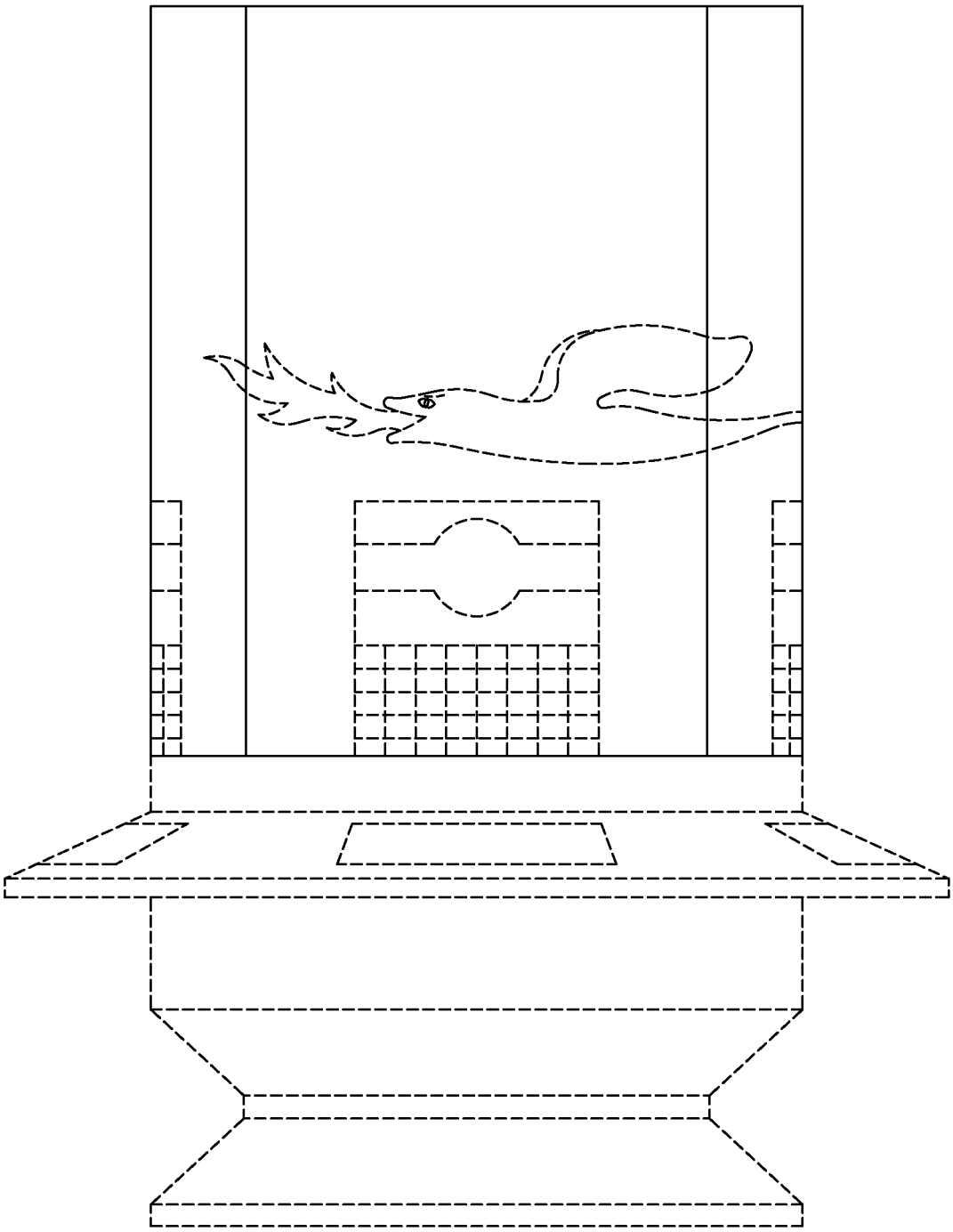

FIG. 17

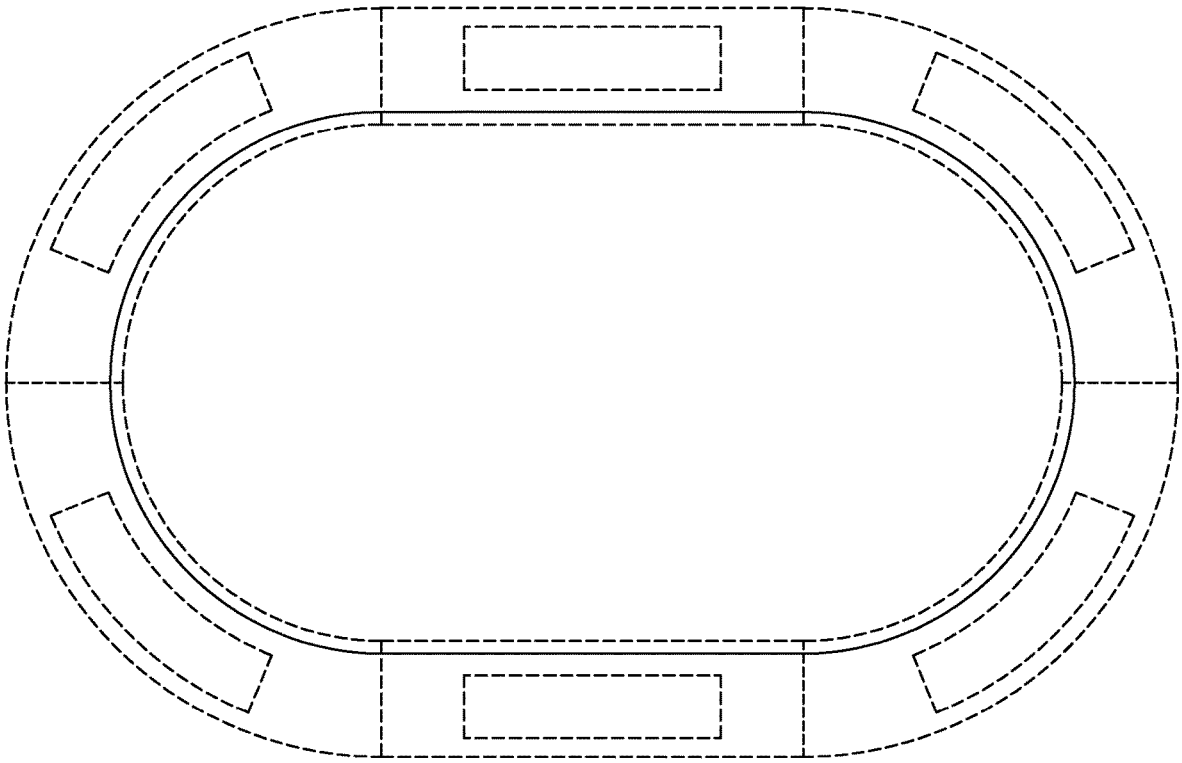

FIG. 18

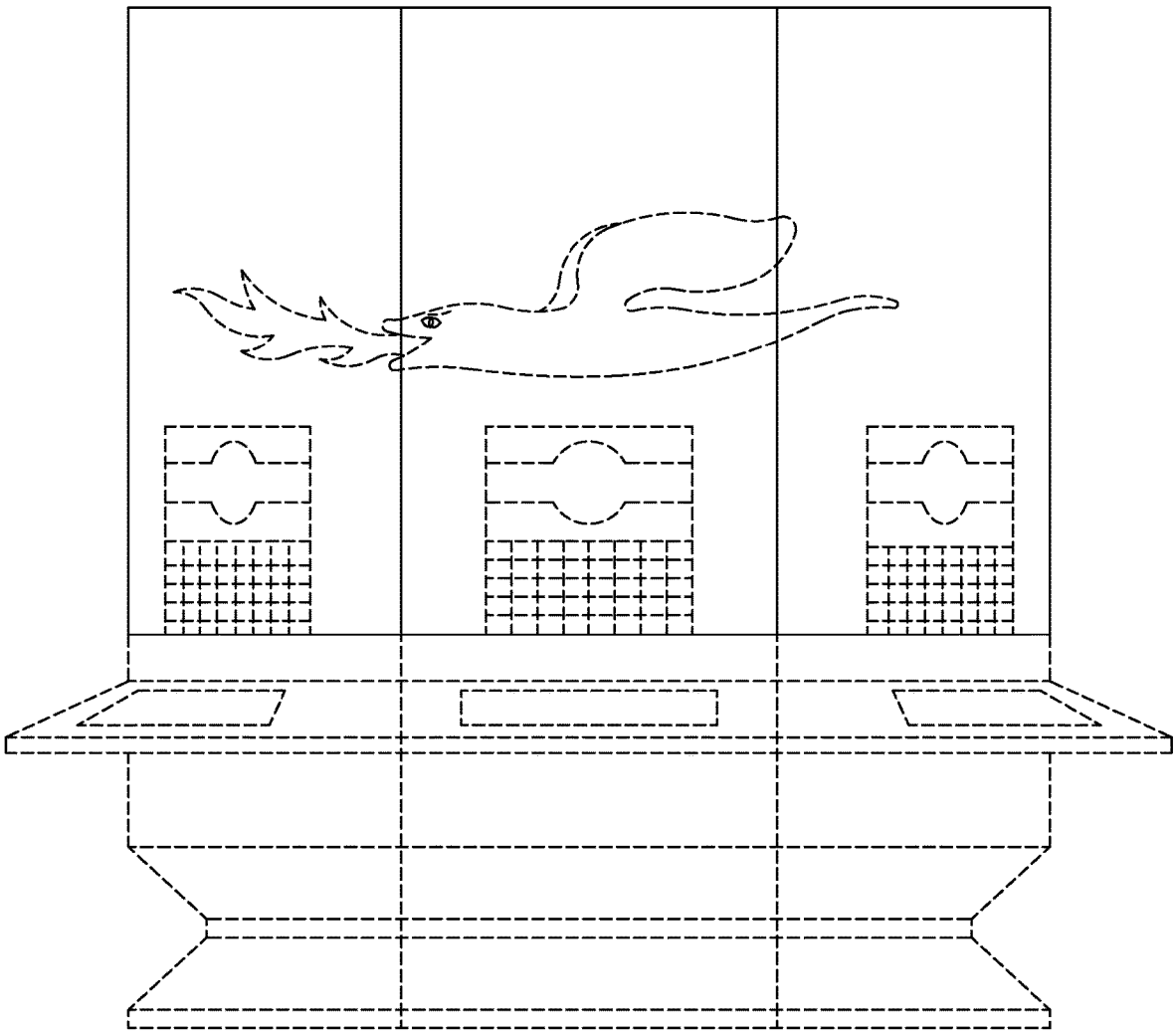

FIG. 19

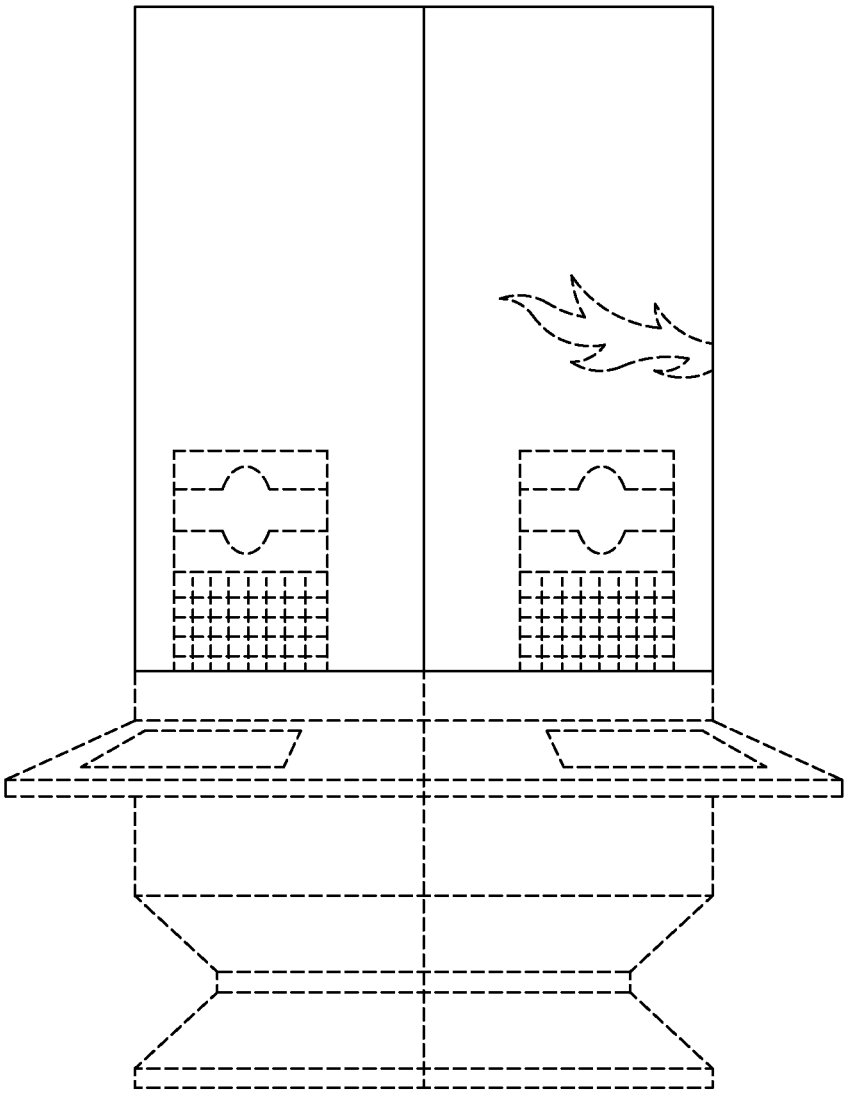

FIG. 20

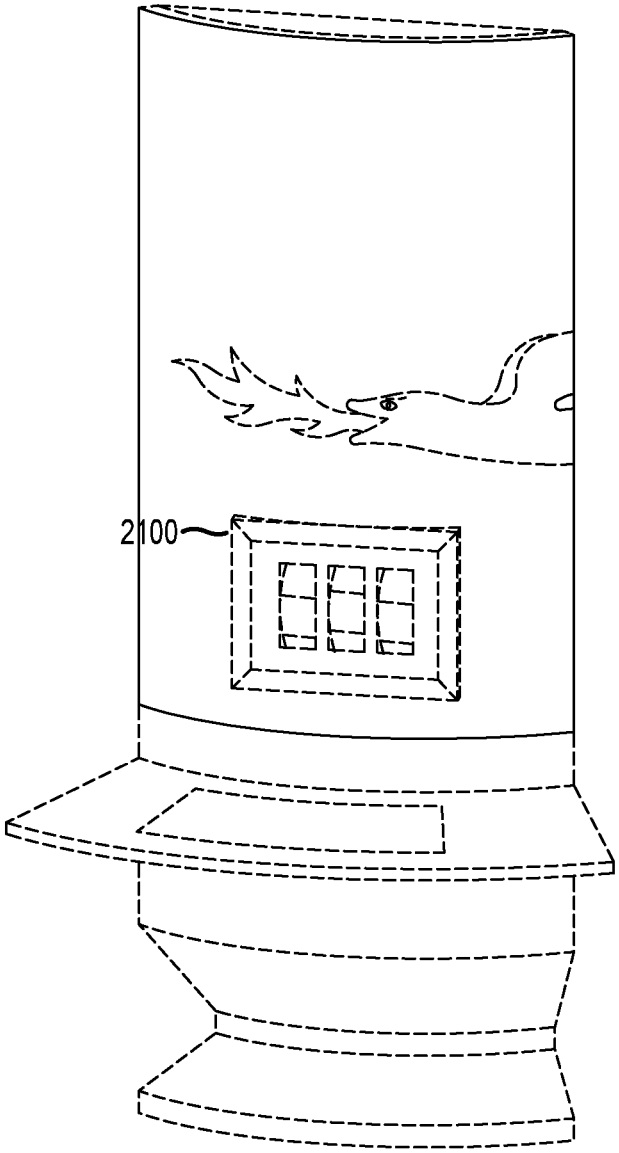

FIG. 21

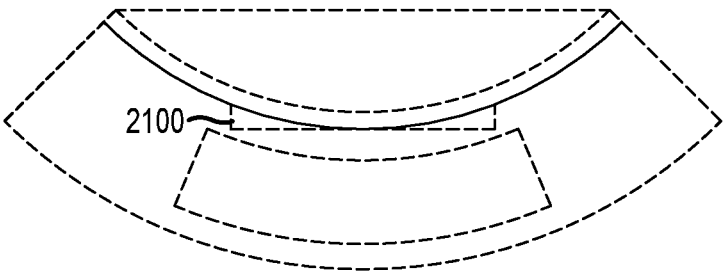

FIG. 22

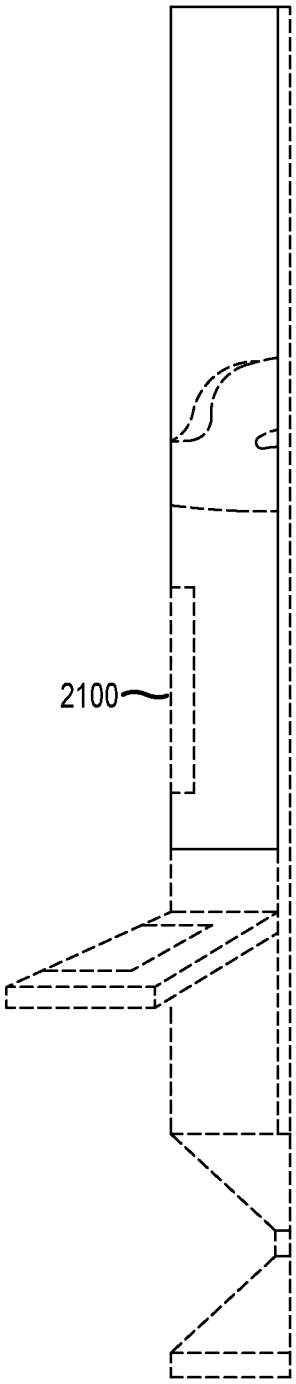

FIG. 23

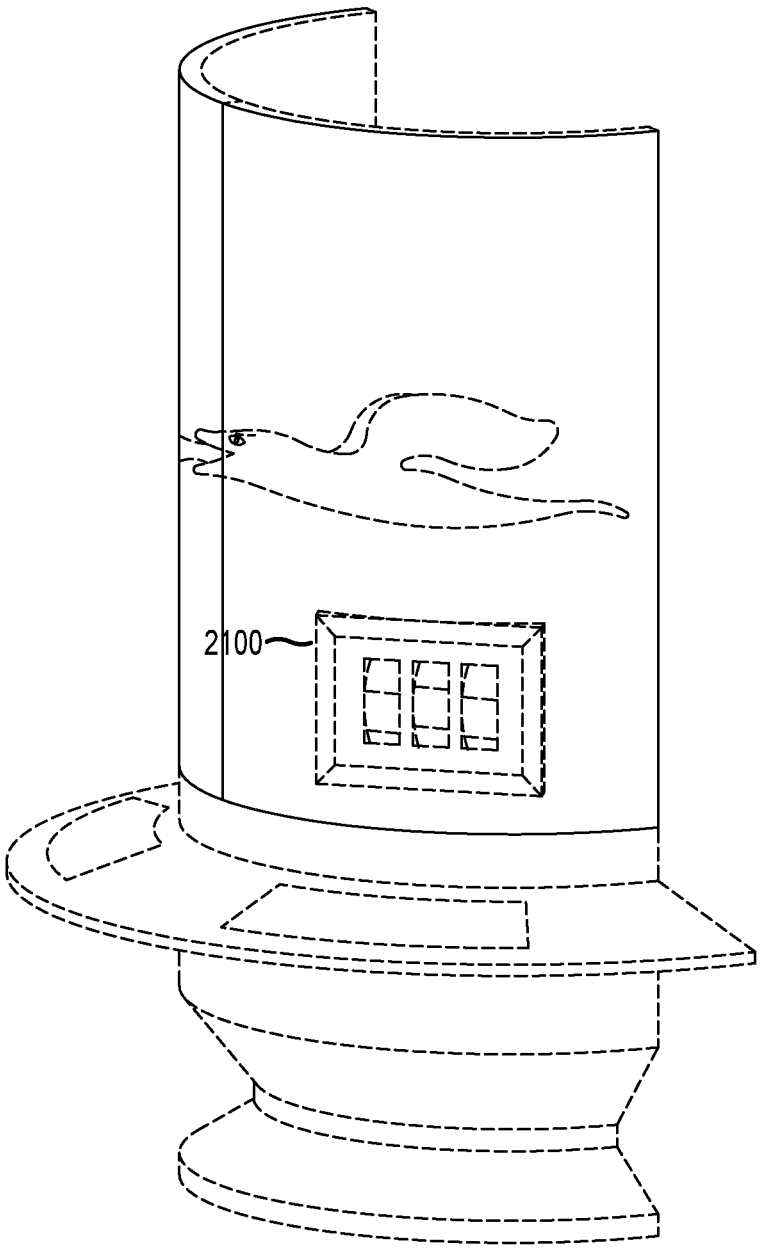

FIG. 24

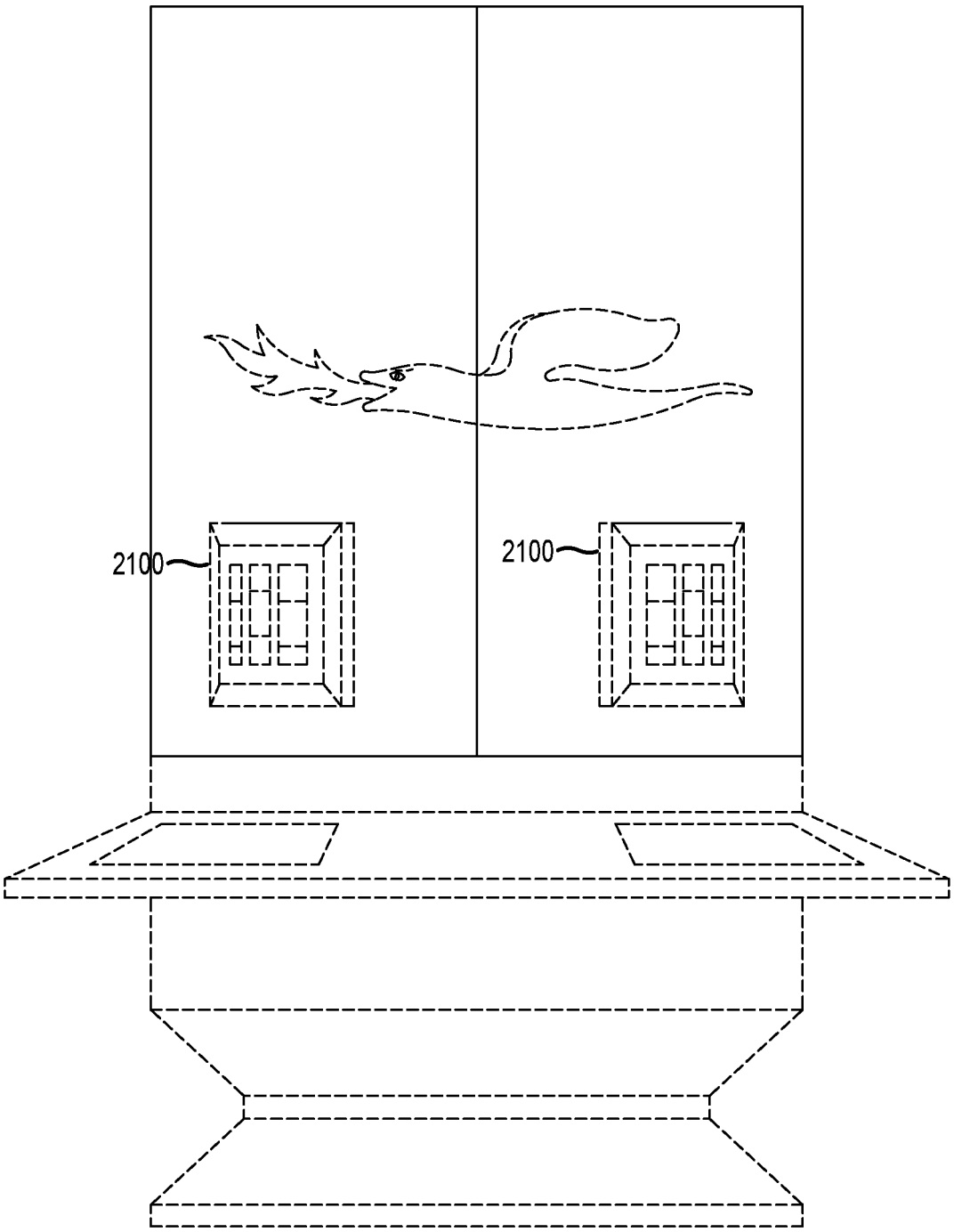

FIG. 25

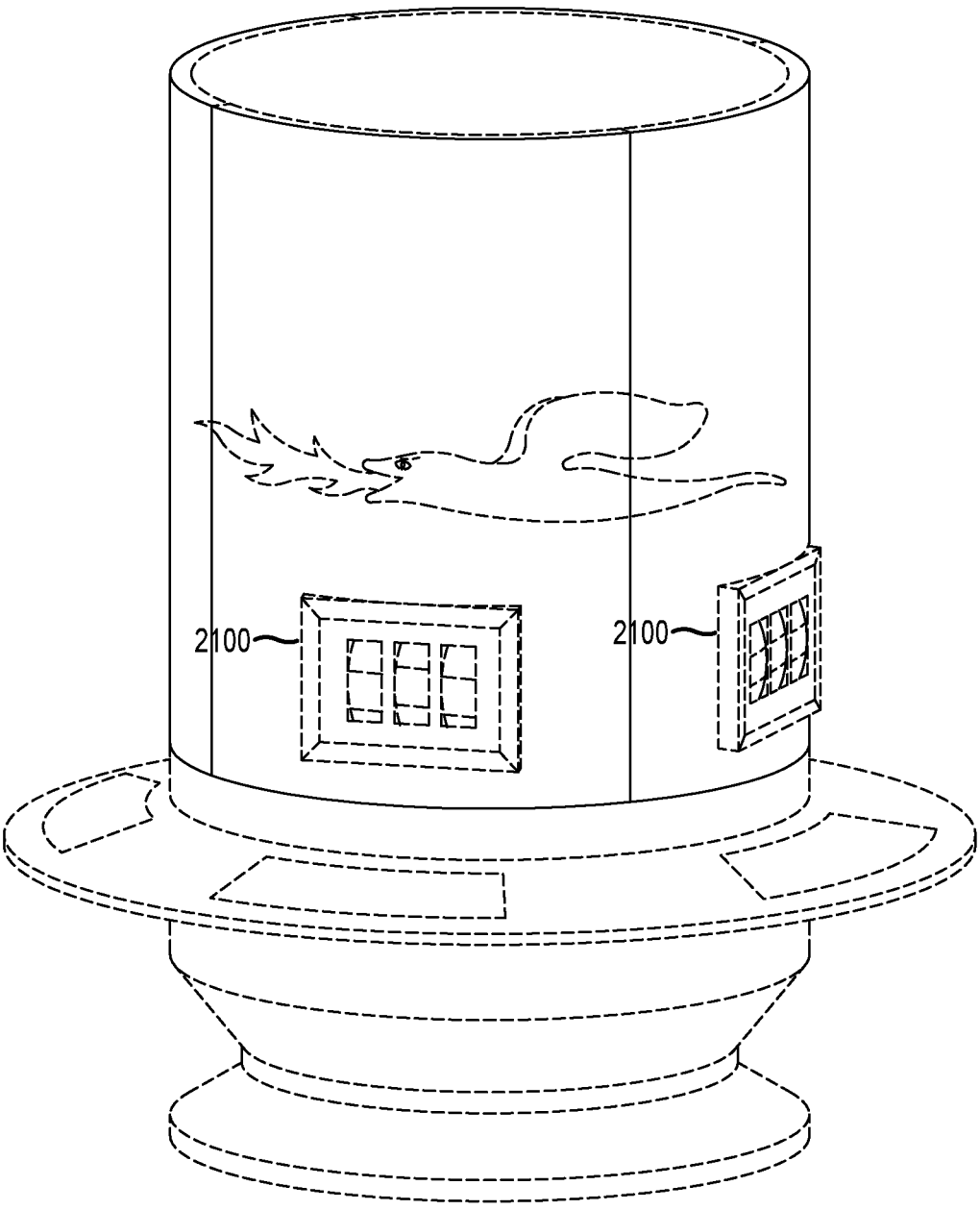

FIG. 26

GAMING MACHINES AND METHOD FOR DISPLAYING BACKGROUNDS ON MULTIPLE GAMING MACHINES

CROSS REFERENCE TO RELATED APPLICATIONS

This application is a continuation of and claims priority to U.S. patent application Ser. No. 17/083,199, filed Oct. 28, 2020, which is a continuation of and claims priority to U.S. patent application Ser. No. 16/433,470, now U.S. Pat. No. 10,839,639, filed Jun. 6, 2019, which claims priority to U.S. Provisional Application No. 62/725,554, filed Aug. 31, 2018, the contents and disclosures of which are incorporated by reference herein in their entireties.

TECHNICAL FIELD

The field of disclosure relates generally to electronic gaming, and more particularly to an electronic gaming machine and method of operation thereof that allows a background display to flow through multiple display screens associated with multiple electronic gaming machines.

BACKGROUND

Electronic gaming machines (EGMs), or gaming devices, provide a variety of wagering games such as, for example, and without limitation, slot games, video poker games, video blackjack games, roulette games, video bingo games, keno games, and other types of games that are frequently offered at casinos and other locations. Play on EGMs typically involves a player establishing a credit balance. When the player is done, he/she cashes out the credit balance (typically by pressing a cash out button to receive a ticket from the ticket printer **222**). The ticket may be "cashed-in" for money or inserted into another machine to establish a credit balance for play by inserting or otherwise submitting money and placing a monetary wager (deducted from the credit balance) on one or more outcomes of an instance, or play, of a primary game, sometimes referred to as a base game. In many games, a player may qualify for secondary games or bonus rounds by attaining a certain winning combination or other triggering event in the base game. Secondary games provide an opportunity to win additional game instances, credits, awards, jackpots, progressives, etc. Awards from any winning outcomes are typically added back to the credit balance and can be provided to the player upon completion of a gaming session or when the player wants to "cash out."

Slot games are often displayed to the player in the form of various symbols arranged in a row-by-column grid, or "matrix." Specific matching combinations of symbols along predetermined paths, or paylines, drawn through the matrix indicate the outcome of the game. The display typically highlights winning combinations and outcomes for ready identification by the player. Matching combinations and their corresponding awards are usually shown in a "pay-table" that is available to the player for reference. Often, the player may vary his/her wager to included differing numbers of paylines and/or the amount bet on each line. By varying the wager, the player may sometimes alter the frequency or number of winning combinations, the frequency or number of secondary games, and/or the amount awarded.

Typical games use a random number generator (RNG) to randomly determine the outcome of each game. The game is designed to return a certain percentage of the amount wagered back to the player, referred to as return to player (RTP), over the course of many plays or instances of the game. The RTP and randomness of the RNG are fundamental to ensuring the fairness of the games and are therefore highly regulated. The RNG may be used to randomly determine the outcome of a game and symbols may then be selected that correspond to that outcome. Alternatively, the RNG may be used to randomly select the symbols whose resulting combinations determine the outcome. Notably, some games may include an element of skill on the part of the player and are therefore not entirely random.

Many conventional gaming machines are independent of the other gaming machines that are around them.

BRIEF DESCRIPTION

In one aspect, a system is provided. The system includes a plurality of electronic gaming machines including a first electronic gaming machine and a second electronic gaming machine. Each electronic gaming machine of the plurality of electronic gaming machines including a display and a controller. The first electronic gaming machine and the second electronic gaming machine are positioned adjacent to each other laterally. A first display associated with the first electronic gaming machine and a second display associated with the second electronic gaming machine are designed to line up horizontally. The system also includes a controller associated with at least one of the first electronic gaming machine and the second electronic gaming machine. The controller programmed to control the first display and the second display. The first display and the second display each display a game display area and a background area. The controller is programmed to cause an image to be displayed on the first display. The controller is also programmed to generate and cause to be displayed an animation of the image moving from the first display to the second display.

In another aspect, a game controller is provided. The game controller includes at least one processor in communication with at least one memory device. The game controller is in communication with a plurality of electronic gaming machines. Each electronic gaming machine of the plurality of electronic gaming machines includes a display including a background and a game display area. The game controller is programmed to determine a plurality of relative locations for the plurality of electronic gaming devices. The game controller is also programmed to generate a plurality of instructions for displaying an animation on the plurality of backgrounds of the plurality of displays. The game controller is further programmed to transmit the corresponding plurality of instructions to each of the plurality of electronic gaming machines.

BRIEF DESCRIPTION OF THE DRAWINGS

An example embodiment of the subject matter disclosed will now be described with reference to the accompanying drawings.

FIG. **1** is an exemplary diagram showing several EGMs networked with various gaming related servers.

FIG. **2** is a block diagram showing various functional elements of an exemplary EGM as shown in FIG. **1**.

FIG. **3** is an exemplary diagram showing an individual EGM as shown in FIG. **1** in accordance with one embodiment of this disclosure.

FIG. **4** is an exemplary diagram showing an exemplary configuration of connected EGMs as shown in FIG. **3** in accordance with one embodiment of this disclosure.

FIG. **5** is an exemplary diagram another exemplary configuration of connected EGMs as shown in FIG. **3** in accordance with one embodiment of this disclosure.

FIG. **6** is a block diagram showing various functional elements of an example of the exemplary configuration of connected EGMs as shown in FIG. **5**.

FIG. **7** is a block diagram showing various functional elements of an example of the exemplary configuration of connected EGMs as shown in FIG. **4**.

FIG. **8** is an exemplary diagram a further exemplary configuration of connected EGMs as shown in FIG. **3** in accordance with one embodiment of this disclosure.

FIG. **9** is an exemplary process of executing an animation on a plurality of EGMS shown in FIG. **3**.

FIG. **10** is a top view of the individual EGM shown in FIG. **3**.

FIG. **11** is a front view of the individual EGM shown in FIG. **3**.

FIG. **12** is a side view of the individual EGM shown in FIG. **3**.

FIG. **13** is perspective view of the connected EGMs in the configuration shown in FIG. **4**.

FIG. **14** is a top view of the connected EGMs in the configuration shown in FIG. **4**.

FIG. **15** is a side view of the connected EGMs in the configuration shown in FIG. **4**.

FIG. **16** is a top view of the connected EGMs in the configuration shown in FIG. **5**.

FIG. **17** is a front view of the connected EGMs in the configuration shown in FIG. **5**.

FIG. **18** is a top view of the connected EGMs in the configuration shown in FIG. **8**.

FIG. **19** is a front view of the connected EGMs in the configuration shown in FIG. **8**.

FIG. **20** is a side view of the connected EGMs in the configuration shown in FIG. **8**.

FIG. **21** is a perspective view of a single EGM including a stepper reel assembly.

FIG. **22** is a top view of the single EGM with the stepper reel assembly.

FIG. **23** is a side view of the single EGM with the stepper reel assembly.

FIG. **24** is a perspective view of connected EGMs with stepper reel assemblies in the configuration shown in FIG. **4**.

FIG. **25** is front view of the connected EGMs with stepper reel assemblies in the configuration shown in FIG. **4**.

FIG. **26** is a perspective view of connected EGMs with stepper reel assemblies in the configuration shown in FIG. **8**.

DETAILED DESCRIPTION

In the exemplary embodiment, a plurality of electronic gaming machines each include large display screens. The plurality of electronic gaming machines are positioned adjacent to each other. The large display screens display an electronic game being displayed in the foreground and a background animation. The plurality of electronic gaming machines are configured so that the background animation is continuous over the plurality of associated display screens. This is configured such that an image may appear on a first display screen of the plurality of display screens and appear to travel from the first display screen to an adjacent display screen. In some embodiments, the background animation of the electronic gaming machines is controlled by a central controller. In other embodiments, the plurality of electronic gaming machines are in communication with each other to control the background animation. In some embodiments, the plurality of electronic gaming machines are permanently attached, such as all being attached to the same base. In other embodiments, the plurality of electronic gaming machines are modular such that each electronic gaming machine is physically independent of the other electronic gaming machines. In the exemplary embodiment, the display screens of the electronic gaming machines are convex at a 90 degree angle, so that images may flow around the corner. For example, a set of two machines side-by-side may have two screens that provide 180 degrees of images and may be used as an end cap on a bank of machines. In another example, four machines may be placed together to generate a 360 degree set of machines that may be walked around and show a single continuous image flowing around the display screens.

FIG. **1** illustrates several different models of EGMs which may be networked to various gaming related servers. Shown is a system **100** in a gaming environment including one or more server computers **102** (e.g., slot servers of a casino) that are in communication, via a communications network, with one or more gaming devices **104**A-**104**X (EGMs, slots, video poker, bingo machines, etc.) that can implement one or more aspects of the present disclosure. The gaming devices **104**A-**104**X may alternatively be portable and/or remote gaming devices such as, but not limited to, a smart phone, a tablet, a laptop, or a game console, although such devices may require specialized software and/or hardware to comply with regulatory requirements regarding devices used for wagering or games of chance in which monetary awards are provided.

Communication between the gaming devices **104**A-**104**X and the server computers **102**, and among the gaming devices **104**A-**104**X, may be direct or indirect, such as over the Internet through a website maintained by a computer on a remote server or over an online data network including commercial online service providers, Internet service providers, private networks, and the like. In other embodiments, the gaming devices **104**A-**104**X may communicate with one another and/or the server computers **102** over RF, cable TV, satellite links and the like.

In some embodiments, server computers **102** may not be necessary and/or preferred. For example, in one or more embodiments, a stand-alone gaming device such as gaming device **104**A, gaming device **104**B or any of the other gaming devices **104**C-**104**X can implement one or more aspects of the present disclosure. However, it is typical to find multiple EGMs connected to networks implemented with one or more of the different server computers **102** described herein.

The server computers **102** may include a central determination gaming system server **106**, a ticket-in-ticket-out (TITO) system server **108**, a player tracking system server **110**, a progressive system server **112**, and/or a casino management system server **114**. Gaming devices **104**A-**104**X may include features to enable operation of any or all servers for use by the player and/or operator (e.g., the casino, resort, gaming establishment, tavern, pub, etc.). For example, game outcomes may be generated on a central determination gaming system server **106** and then transmitted over the network to any of a group of remote terminals or remote gaming devices **104**A-**104**X that utilize the game outcomes and display the results to the players.

Gaming device **104**A is often of a cabinet construction which may be aligned in rows or banks of similar devices for placement and operation on a casino floor. The gaming device **104**A often includes a main door **154** which provides access to the interior of the cabinet. Gaming device **104**A

typically includes a button area or button deck **120** accessible by a player that is configured with input switches or buttons **122**, an access channel for a bill validator **124**, and/or an access channel for a ticket-out printer **126**.

In FIG. **1**, gaming device **104**A is shown as a Relm XL™ model gaming device manufactured by Aristocrat® Technologies, Inc. As shown, gaming device **104**A is a reel machine having a gaming display area **118** comprising a number (typically 3 or 5) of mechanical reels **130** with various symbols displayed on them. The reels **130** are independently spun and stopped to show a set of symbols within the gaming display area **118** which may be used to determine an outcome to the game.

In many configurations, the gaming machine **104**A may have a main display **128** (e.g., video display monitor) mounted to, or above, the gaming display area **118**. The main display **128** can be a high-resolution LCD, plasma, LED, or OLED panel which may be flat or curved as shown, a cathode ray tube, or other conventional electronically controlled video monitor.

In some embodiments, the bill validator **124** may also function as a "ticket-in" reader that allows the player to use a casino issued credit ticket to load credits onto the gaming device **104**A (e.g., in a cashless ticket ("TITO") system). In such cashless embodiments, the gaming device **104**A may also include a "ticket-out" printer **126** for outputting a credit ticket when a "cash out" button is pressed. Cashless TITO systems are well known in the art and are used to generate and track unique bar-codes or other indicators printed on tickets to allow players to avoid the use of bills and coins by loading credits using a ticket reader and cashing out credits using a ticket-out printer **126** on the gaming device **104**A. The gaming machine **104**A can have hardware meters for purposes including ensuring regulatory compliance and monitoring the player credit balance. In addition, there can be additional meters that record the total amount of money wagered on the gaming machine, total amount of money deposited, total amount of money withdrawn, total amount of winnings on gaming device **104**A.

In some embodiments, a player tracking card reader **144**, a transceiver for wireless communication with a player's smartphone, a keypad **146**, and/or an illuminated display **148** for reading, receiving, entering, and/or displaying player tracking information is provided in EGM **104**A. In such embodiments, a game controller within the gaming device **104**A can communicate with the player tracking system server **110** to send and receive player tracking information.

Gaming device **104**A may also include a bonus topper wheel **134**. When bonus play is triggered (e.g., by a player achieving a particular outcome or set of outcomes in the primary game), bonus topper wheel **134** is operative to spin and stop with indicator arrow **136** indicating the outcome of the bonus game. Bonus topper wheel **134** is typically used to play a bonus game, but it could also be incorporated into play of the base or primary game.

A candle **138** may be mounted on the top of gaming device **104**A and may be activated by a player (e.g., using a switch or one of buttons **122**) to indicate to operations staff that gaming device **104**A has experienced a malfunction or the player requires service. The candle **138** is also often used to indicate a jackpot has been won and to alert staff that a hand payout of an award may be needed.

There may also be one or more information panels **152** which may be a back-lit, silkscreened glass panel with lettering to indicate general game information including, for example, a game denomination (e.g., $0.25 or $1), pay lines, pay tables, and/or various game related graphics. In some embodiments, the information panel(s) **152** may be implemented as an additional video display.

Gaming devices **104**A have traditionally also included a handle **132** typically mounted to the side of main cabinet **116** which may be used to initiate game play.

Many or all the above described components can be controlled by circuitry (e.g., a gaming controller) housed inside the main cabinet **116** of the gaming device **104**A, the details of which are shown in FIG. **2**.

Note that not all gaming devices suitable for implementing embodiments of the present disclosure necessarily include top wheels, top boxes, information panels, cashless ticket systems, and/or player tracking systems. Further, some suitable gaming devices have only a single game display that includes only a mechanical set of reels and/or a video display, while others are designed for bar counters or table tops and have displays that face upwards.

An alternative example gaming device **104**B illustrated in FIG. **1** is the Arc™ model gaming device manufactured by Aristocrat® Technologies, Inc. Note that where possible, reference numerals identifying similar features of the gaming device **104**A embodiment are also identified in the gaming device **104**B embodiment using the same reference numbers. Gaming device **104**B does not include physical reels and instead shows game play functions on main display **128**. An optional topper screen **140** may be used as a secondary game display for bonus play, to show game features or attraction activities while a game is not in play, or any other information or media desired by the game designer or operator. In some embodiments, topper screen **140** may also or alternatively be used to display progressive jackpot prizes available to a player during play of gaming device **104**B.

Example gaming device **104**B includes a main cabinet **116** including a main door **154** which opens to provide access to the interior of the gaming device **104**B. The main or service door **154** is typically used by service personnel to refill the ticket-out printer **126** and collect bills and tickets inserted into the bill validator **124**. The main or service door **154** may also be accessed to reset the machine, verify and/or upgrade the software, and for general maintenance operations.

Another example gaming device **104**C shown is the Helix™ model gaming device manufactured by Aristocrat® Technologies, Inc. Gaming device **104**C includes a main display **128**A that is in a landscape orientation. Although not illustrated by the front view provided, the landscape display **128**A may have a curvature radius from top to bottom, or alternatively from side to side. In some embodiments, display **128**A is a flat panel display. Main display **128**A is typically used for primary game play while secondary display **128**B is typically used for bonus game play, to show game features or attraction activities while the game is not in play or any other information or media desired by the game designer or operator. In some embodiments, example gaming device **104**C may also include speakers **142** to output various audio such as game sound, background music, etc.

Many different types of games, including mechanical slot games, video slot games, video poker, video black jack, video pachinko, keno, bingo, and lottery, may be provided with or implemented within the depicted gaming devices **104**A-**104**C and other similar gaming devices. Each gaming device may also be operable to provide many different games. Games may be differentiated according to themes, sounds, graphics, type of game (e.g., slot game vs. card

game vs. game with aspects of skill), denomination, number of paylines, maximum jackpot, progressive or non-progressive, bonus games, and may be deployed for operation in Class 2 or Class 3, etc.

FIG. **2** is a block diagram depicting exemplary internal electronic components of a gaming device **200** connected to various external systems. All or parts of the example gaming device **200** shown could be used to implement any one of the example gaming devices **104**A-X depicted in FIG. **1**. The games available for play on the gaming device **200** are controlled by a game controller **202** that includes one or more processors **204** and a game that may be stored as game software or a program **206** in a memory **208** coupled to the processor **204**. The memory **208** may include one or more mass storage devices or media that are housed within gaming device **200**. Within the mass storage devices and/or memory **208**, one or more databases **210** may be provided for use by the program **206**. A random number generator (RNG) **212** that can be implemented in hardware and/or software is typically used to generate random numbers that are used in the operation of game play to ensure that game play outcomes are random and meet regulations for a game of chance.

Alternatively, a game instance (i.e. a play or round of the game) may be generated on a remote gaming device such as a central determination gaming system server **106** (not shown in FIG. **2** but see FIG. **1**). The game instance is communicated to gaming device **200** via the network **214** and then displayed on gaming device **200**. Gaming device **200** may execute game software, such as but not limited to video streaming software that allows the game to be displayed on gaming device **200**. When a game is stored on gaming device **200**, it may be loaded from a memory **208** (e.g., from a read only memory (ROM)) or from the central determination gaming system server **106** to memory **208**. The memory **208** may include RAM, ROM or another form of storage media that stores instructions for execution by the processor **204**. Note that embodiments of the present disclosure represent an improvement in the art of EGM software and provide new technology in that they control multiple interconnected EGMs to coordinate a background display over the interconnected EGMs. These embodiments are thus not merely new game rules or simply a new display pattern.

The gaming device **200** may include a topper display **216** or another form of a top box (e.g., a topper wheel, a topper screen, etc.) which sits above cabinet **218**. The cabinet **218** or topper display **216** may also house a number of other components which may be used to add features to a game being played on gaming device **200**, including speakers **220**, a ticket printer **222** which prints bar-coded tickets or other media or mechanisms for storing or indicating a player's credit value, a ticket reader **224** which reads bar-coded tickets or other media or mechanisms for storing or indicating a player's credit value, and a player tracking interface **232**. The player tracking interface **232** may include a keypad **226** for entering information, a player tracking display **228** for displaying information (e.g., an illuminated or video display), a card reader **230** for receiving data and/or communicating information to and from media or a device such as a smart phone enabling player tracking. Ticket printer **222** may be used to print tickets for a TITO system server **108**. The gaming device **200** may further include a bill validator **234**, player-input buttons **236** for player input, cabinet security sensors **238** to detect unauthorized opening of the cabinet **218**, a primary game display **240**, and a secondary game display **242**, each coupled to and operable under the control of game controller **202**.

Gaming device **200** may be connected over network **214** to player tracking system server **110**. Player tracking system server **110** may be, for example, an OASIS® system manufactured by Aristocrat® Technologies, Inc. Player tracking system server **110** is used to track play (e.g. amount wagered, games played, time of play and/or other quantitative or qualitative measures) for individual players so that an operator may reward players in a loyalty program. The player may use the player tracking interface **232** to access his/her account information, activate free play, and/or request various information. Player tracking or loyalty programs seek to reward players for their play and help build brand loyalty to the gaming establishment. The rewards typically correspond to the player's level of patronage (e.g., to the player's playing frequency and/or total amount of game plays at a given casino). Player tracking rewards may be complimentary and/or discounted meals, lodging, entertainment and/or additional play. Player tracking information may be combined with other information that is now readily obtainable by a casino management system.

Gaming devices, such as gaming devices **104**A-**104**X, **200**, are highly regulated to ensure fairness and, in many cases, gaming devices **104**A-**104**X, **200** are operable to award monetary awards (e.g., typically dispensed in the form of a redeemable voucher). Therefore, to satisfy security and regulatory requirements in a gaming environment, hardware and software architectures are implemented in gaming devices **104**A-**104**X, **200** that differ significantly from those of general-purpose computers. Adapting general purpose computers to function as gaming devices **200** is not simple or straightforward because of: 1) the regulatory requirements for gaming devices **200**, 2) the harsh environment in which gaming devices **200** operate, 3) security requirements, 4) fault tolerance requirements, and 5) the requirement for additional special purpose componentry enabling functionality of an EGM. These differences require substantial engineering effort with respect to game design implementation, hardware components and software.

When a player wishes to play the gaming device **200**, he/she can insert cash or a ticket voucher through a coin acceptor (not shown) or bill validator **234** to establish a credit balance on the gamine machine. The credit balance is used by the player to place wagers on instances of the game and to receive credit awards based on the outcome of winning instances. The credit balance is decreased by the amount of each wager and increased upon a win. The player can add additional credits to the balance at any time. The player may also optionally insert a loyalty club card into the card reader **230**. During the game, the player views the game outcome on one or more of the primary game display **240** and secondary game display **242**. Other game and prize information may also be displayed.

For each game instance, a player may make selections, which may affect play of the game. For example, the player may vary the total amount wagered by selecting the amount bet per line and the number of lines played. In many games, the player is asked to initiate or select options during course of game play (such as spinning a wheel to begin a bonus round or select various items during a feature game). The player may make these selections using the player-input buttons **236**, the primary game display **240** which may be a touch screen, or using some other device which enables a player to input information into the gaming device **200**.

During certain game events, the gaming device **200** may display visual and auditory effects that can be perceived by

the player. These effects add to the excitement of a game, which makes a player more likely to enjoy the playing experience. Auditory effects include various sounds that are projected by the speakers **220**. Visual effects include flashing lights, strobing lights or other patterns displayed from lights on the gaming device **200** or from lights behind the information panel **152** (FIG. **1**).

When the player is done, he/she cashes out the credit balance (typically by pressing a cash out button to receive a ticket from the ticket printer **222**). The ticket may be "cashed-in" for money or inserted into another machine to establish a credit balance for play.

FIG. **3** is an exemplary diagram showing an individual EGM **300** as shown in FIG. **1** in accordance with one embodiment of this disclosure. In some embodiments, EGM **300** is similar to gaming device **200** shown in FIG. **2** or gaming devices **104**A-**104**X.

The individual EGM **300** includes a stand **302**, an interactive console **304**, and a display screen **306**. The display screen **306** displays a game display area **308** and a background that may include at least one animation **310**. In some embodiments, the game display area **308** and the background are coordinated and controlled separately, such as with Picture-in-Picture. In these embodiments, changes to the background do not affect the game display area **308** and the reverse. In some embodiments, game display area **308** may include both primary game display **240** and secondary game display **242** (both shown in FIG. **2**).

In the exemplary embodiment, the display screen **306** is a high-resolution LCD with LED backlighting. In other embodiments, the display screen **306** is a plasma, LED, or OLED panel. The display screen **306** is convex as shown in FIGS. **3** and **9**-**11**. This allows the display screen to be viewed at a plurality of angles. As shown in FIG. **9**, the individual EGM **300** is design to be at a 90 degree angle. In some embodiments, the individual EGM **300** is designed to be modular, so that a plurality of individual EGMs **300** may fit together, such as shown in FIGS. **4** and **5**. In other not shown embodiments, the individual EGMs **300** are designed to be fit together at different angles. For example, the individual EGMs **300** may be configured to each cover a 60 degree angle. Therefore, three EGMs would be used as an endcap and cover 180 degrees. These different angles may be required to be different sizes from the 90 degree EGMs to allow for sufficient play space for each player. While the display screens **306** shown in these figures are convex, concave display screens may also be used in other embodiments, such as in an inner corner of a plurality of EGMs **300** in an 'L' configuration.

In the exemplary embodiment, the interactive console **304** is positioned on a shelf **312** may include one or more features to allow a player to play a wagering game, such as, but not limited to, buttons **236**, a bill validator **234**, ticket printer **222**, and a ticket reader **224** (all shown in FIG. **2**). In some other embodiments, the interactive console **304** and the shelf **312** may be a display screen, wherein the interactive console **304** is a picture-in-picture display or a cut-out, so that images and animations may be displayed on the display on the shelfs **312**. For example, the display screen on the shelf **312** may display dragons flying from one EGM shelf to another.

In the exemplary embodiment, the EGM **300** is configured to be placed adjacent to other EGMs **300** and to coordinate the background images and animations between the adjacent EGMs **300** to allow for continuous images and animations. In some further embodiments, the adjacent EGMs **300** are physically locked together to ensure that the display screens **306** are properly lined up. In some embodiments, the images and animations are related to the theme of the associated wagering game. The images and animations may change based on gameplay. The images and animations may also change when the EGMs **300** are in an "attract" mode.

In some embodiments, the game display area **308** is a stepper reel assembly that is a cut-out from display screen **306**. In these embodiments, the game display area **308** may comprise a flat surface, such as glass. Behind the flat surface are situated stepper (mechanical) reels for playing the wagering game. In these embodiments, the game display area **308** would be detachable for servicing, such as releasing with a latch situated below. In some embodiments, the game display area **308** and stepper reels are placed in a recess in the display screen **306** that includes drawer slides for servicing. In these embodiments, the display of the background and the animation **310** would be unaffected by the cut-out and game display area **308**. Examples of these embodiments with stepper reel assemblies are shown in FIGS. **20**-**25**.

In some embodiments, the background and/or animation **310** may include bonus information, advertising, or promotional information. For example, the game display area **308** may display an advertisement for a nearby restaurant and point to the restaurant. Some of the promotional information may be tailored to the individual players that are actively playing the EGM **300**. In some of these embodiments, the bonus information, advertisement, or promotional information may be provided by a separate server, such as the casino management system server **114** (shown in FIG. **1**). In some embodiments, the advertising may be targeted towards the player at the machine, who may be identified via the player reward card.

In some embodiments, the display screen **306** is divided up into multiple sections in addition to the section dedicated to the game display area **308**. For example, a first section may display progressive jackpot information provided from a remote gaming server **102** (shown in FIG. **1**) associated with the progressive jackpot. Another section may show advertising from an advertising server **102**, which may be associated with the casino, or location of the EGM, or the advertising server **102** may provide more general advertisements. A different section may show images or animations **310** associated with the theme of the EGM. Any of these sections may flow over multiple display screens **306**. For example, the progressive jackpot numbers may travel across all of the display screen **306** of all of the EGMs **300** in a row, bank, end cap, or circular configuration.

FIG. **4** is an exemplary diagram showing an exemplary configuration **400** of two connected EGMs **300** as shown in FIG. **3** in accordance with one embodiment of this disclosure. In configuration **400**, there are two individual EGMS **402** and **404** that are positioned adjacent to each other. In some embodiments, EGMS **402** and **404** are individual EGMs **300** that are independent and that are positioned adjacent to each other. In other embodiments, EGMs **402** and **404** are manufactured to be adjacent to each other on a single stand **406**. Each EGM **402** and **404** includes an interactive console **408**, which may be similar to interactive console **304** (shown in FIG. **3**), and a display screen **410**, which may be similar to display screen **306** (shown in FIG. **3**). Each display screen **410** includes a game display area **412** for the corresponding EGM and a background that includes at least one animation **414**. In some embodiments,

game display area **412** may include both primary game display **240** and secondary game display **242** (both shown in FIG. **2**)

In configuration **400**, the display screens **410** of the two EGMs are curved to generate a half circle or 180 degrees. This would allow two players to play the associated wagering game. The EGMs in configuration **400** may be set-up as the end cap for a row of other EGMs.

In the exemplary embodiment, EGMs **402** and **404** are in communication so that the background and animation **414** shown on each corresponding display screen **410** is coordinated. In some embodiments, a background animation **414** may be shown on both display screens **410** simultaneously and may travel between the two display screens **410**. For example, a dragon or a spaceship may be seen flying from the display screen **410** associated with EGM **404** to the display screen **410** associated with EGM **402**. As shown in FIG. **4**, different portions of the animation **414** may be shown on the various display screens **410**. For example, the front of the spaceship or dragon may appear on the display screen **410** for EGM **402**, while the back end of the spaceship or dragon may appear on the display screen **410** for EGM **404**.

FIG. **5** is an exemplary diagram another exemplary configuration **500** of connected EGMs **300** as shown in FIG. **3** in accordance with one embodiment of this disclosure. In configuration **500**, four EGMs **502** are positioned in a circle configuration. In some embodiments, the four EGMs **502** are part of a single unit with a single display stand **504**. In other embodiments, the four EGMs **502** are individual EGMs **300** that are positioned in a circular arrangement. In still other embodiments, the four EGMs **502** are two sets of paired EGMs, such as shown in configuration **400** in FIG. **4**. Each of the four EGMs **502** includes an interactive console **508**, which may be similar to interactive console **304** (shown in FIG. **3**), and a display screen **510**, which may be similar to display screen **306** (shown in FIG. **3**). Each display screen **510** includes a game display area **512** for the corresponding EGM **502** and a background that includes at least one animation **514**. In some embodiments, game display area **512** may include both primary game display **240** and secondary game display **242** (both shown in FIG. **2**)

In configuration **500**, the display screens **510** of the four EGMs **502** are curved to generate a full circle or 360 degrees. This would allow four players to play the associated wagering game. In other configurations, other numbers of players may be able to play in the circular configuration, such as 6, in the case of 60 degree EGMs **300** or 3 in the case of 120 degree EGMs **300**.

In the exemplary embodiment, the EGMs **502** are in communication so that the background and animation **514** shown on each corresponding display screen **510** is coordinated. In some embodiments, a background animation **514** may be shown on multiple display screens **510** simultaneously and may travel between the four display screens **510**. For example, a dragon or a spaceship may be seen flying from the display screen **510** associated with one EGM **502** to the display screen **510** associated with another EGM **502**. As shown in FIG. **5**, different portions of the animation **514** may be shown on the various display screens **510**. For example, the front of the spaceship or dragon may appear on the display screen **510** for one EGM **502**, while the back end of the spaceship or dragon may appear on the display screen **510** for another EGM **502**.

In the exemplary embodiment, the game display area **512** only covers a portion of the total display screen **510**. The rest of the display screen **510** is covered by background and animations **514**. In some embodiments, the background and animations **514** are based on the game play. These images and animations **514** may be based on the game as a whole or the images and animations **514** may be based on the current events in the game. For example, the background may include a progressive jackpot indicator that covers multiple display screens **510**. The progressive jackpot indicator may rotate around the display screens **510**. The display screens **510** may also show items floating up to the progressive jackpot indicator based on game play. In addition, the display screens **510** may also show an animation of money being funneled or dumped into a particular gaming area if one of the EGMs **502** wins one of the progressive jackpots. In some embodiments, the display screens **510** may also display advertising provided by a remote server **102** (shown in FIG. **1**).

As shown in configuration **500**, the plurality of electronic gaming machines **502** are positioned laterally in a circular configuration so that the animation **514** may travel from a first display **510** the across all of the plurality of displays **510** and return to the first display **510**.

FIG. **6** is a block diagram showing various functional elements of an example of the exemplary configuration **500** of connected EGMs **604** as shown in FIG. **5**. In this embodiment, four EGMs **604**, which may be similar to EGMs **502** (shown in FIG. **5**), are connected to a central controller **602**. Each EGM **604** includes a local controller **606** and a display **608**, which may be similar to display **510** (shown in FIG. **5**).

In some embodiments, the central controller **602** is configured to instruct the local controllers **606** on how to display the background. In these embodiments, the central controller **602** coordinates the locations of the different pixels and objects in the background including the animation. Then the central controller **602** determines which display **608** is to display which objects and/or pixels and instructs the local controller **606** what to display in the various corresponding displays **608**. In some of these embodiments, the local controller **606** executes the wagering game and instructs the display **608** how to display the wagering game, while receiving the information from the central controller **602** on the information to display for the background area of the displays **608**. In other embodiments, the central controller **602** also controls the gameplay of the EGMs **604** and the local controller handles interpreting the instructions from the central controller **602** to be display on the corresponding display **608**.

In some embodiments, central controller **602** may be one of, or at least in communication with one of, casino management system **114**, TITO system server **108**, player tracking system **110**, and progressive system server **112** (all shown in FIG. **1**). For example, central controller **602** may receive information from progressive system server **112** to display and the central controller **602** then integrates that information into the display. In some further embodiments, the central controller **602** and a separate server **102** each control different portions of he displays **608**. For example, an advertising server (not shown) may control a top section of the displays **608** and the central controller **602** controls the rest of the displays **608**. In still further embodiments, the central controller **602** shares control of the rest of the displays **608** with the local controllers **606**. In some embodiments, local controller **606** may be game controller **202** (shown in FIG. **2**). In some embodiments, display **608** may include both primary game display **240** and secondary game display **242**.

While only four EGMs **604** are shown in FIG. **6**, one skilled in the art would understand that any number of EGMs **604** may be connected to one or more central controllers **602** to coordinate the images being displayed on the various displays **608**.

In some embodiments, the central controller **602** is physically located near the EGMs **604**. In these embodiments, each EGM **604** may be directly wired into a specific port on the central controller **602**, so that the central controller **602** knows which EGM **604** is to be positioned where based on the corresponding port. In other embodiment, the central controller **602** is remote from the EGMs **604** and communicates with the EGMs **604** via a wired or wireless connection, such as through a local area network (LAN).

FIG. **7** is a block diagram showing various functional elements of an example of the exemplary configuration **400** of connected EGMs **702** as shown in FIG. **4**. In this embodiment, two EGMs **702**, which may be similar to EGMs **402** and **404** (shown in FIG. **4**), are connected to each other. Each EGM **702** includes a local controller **704** and a display **706**, which may be similar to display **410** (shown in FIG. **4**).

In this configuration, the local controllers **704** of the two EGMs **702** are in communication about how to display the background. In these embodiments, the two local controllers **704** coordinate the locations of the different pixels and objects in the background including the animation. Then two local controllers **704** determine which display **706** is to display which objects and/or pixels and instructs the corresponding display **608** on what to display. In some of these embodiments, the local controller **704** executes the wagering game and instructs the display **706** how to display the wagering game, while receiving the information from the other local controller **704** on the information to display for the background area of its displays **706**. In some embodiments, one local controller **704** is master controller and the other local controller **704** is a slave controller.

In some embodiments, local controller **704** may be game controller **202** (shown in FIG. **2**). In some embodiments, display **706** may include both primary game display **240** and secondary game display **242**.

While only two EGMs **702** are shown in FIG. **7**, one skilled in the art would understand that any number of EGMs **702** may be connected to each other to coordinate the images being displayed on the various displays **706**.

FIG. **8** is an exemplary diagram a further exemplary configuration **800** of connected EGMs **300** as shown in FIG. **3** in accordance with one embodiment of this disclosure. In configuration **800**, six EGMs **802** and **804** are positioned in an aisle configuration. In the exemplary embodiment, there are four 90 degree EGMs **802**, which may be similar to EGM **300** (shown in FIG. **3**). These EGMS **802** are connected by EGMs **804**. The primary difference between EGMs **802** and **804** are whether the corresponding EGM is curved or flat. EGMs **802** include curved stands **806**, curved interactive consoles **808**, and curved display screens **810**. Flat EGMs **804** include non-angled stands **806**, non-angled interactive consoles **808**, and flat display screens **812**.

In some embodiments, each of EGM **802** and EGM **804** are individual devices and are manually positioned in configuration **800**. In other embodiments, the four EGMs **802** are two sets of paired EGMs, such as shown in configuration **400** in FIG. **4**. While only two flat EGMs **804** are shown, any number of flat EGMs may be placed in between the curved EGMs **802** to achieve the desired shape or configuration. For example ten flat EGMs **804** could be placed in between two sets of two curved EGMs **802** to create a long aisle. In another configuration, three flat EGMs **804** could be placed between each pair of curved EGMs **802** to make a large square or rectangle.

The interactive consoles **808** may be similar to interactive console **304** (shown in FIG. **3**), and the display screens **810** may be similar to display screen **306** (shown in FIG. **3**). Each display screen **810** and **812** includes a game display area **814** for the corresponding EGM **802** and **804** and a background that includes at least one animation **816**.

In the exemplary embodiment, the EGMs **802** and **804** are in communication so that the background and animation **816** shown on each corresponding display screen **810** and **812** is coordinated. In some embodiments, a background animation **816** may be shown on multiple display screens **810** and **812** simultaneously and may travel between the multiple display screens **810** and **812**. For example, a dragon or a spaceship may be seen flying from the display screen **810** associated with one EGM **802** to the display screen **812** associated with another EGM **802**. As shown in FIG. **8**, different portions of the animation **816** may be shown on the various display screens **810** and **812**. For example, the front of the spaceship or dragon may appear on the display screen **810** for one EGM **502**, while the back end of the spaceship or dragon may appear on the display screen **812** for another EGM **804**.

As shown in configuration **800**, the plurality of electronic gaming machines are positioned laterally in an oval configuration so that the animation **816** may travel from a first display the across all of the plurality of displays and return to the first display.

In the exemplary embodiment, the game display area **814** only covers a portion of the total display screen **810** and **812**. The rest of the display screens **810** and **812** may be covered by background and animations **816**. In some embodiments, the background and animations **816** are based on the game play. These images and animations **816** may be based on the game as a whole or the images and animations **816** may be based on the current events in the game. For example, the background may include a progressive jackpot indicator that covers multiple display screens **810** and **812**. The progressive jackpot indicator may rotate around the display screens **810** and **812**. The display screens **810** and **812** may also show items floating up to the progressive jackpot indicator based on game play. In addition, the display screens **810** and **812** may also show an animation of money being funneled or dumped into a particular gaming area if one of the EGMs **802** and **804** wins one of the progressive jackpots. In some embodiments, the display screens **810** and **812** may also display advertising provided by a remote server **102** (shown in FIG. **1**).

FIG. **9** is an exemplary process **900** of executing an animation on a plurality of EGMS **300** shown in FIG. **3**. In the exemplary embodiment, process **900** is executed by a central controller, such as central controller **602** (shown in FIG. **6**). In the exemplary embodiment, central controller **602** is in communication with a plurality of EGMs **300**, which may be in configurations, such as configuration **400** (shown in FIG. **4**), configuration **800** (shown in FIG. **8**), or any other configuration of adjacent EGMs **300** that allows the systems to work as described herein.

In the exemplary embodiment, the central controller **602** receives **905** a plurality of locations of a plurality of EGMs **300**. In some embodiments, the EGM locations are provided by a user. In other embodiments, the central controller **602** determines the locations of the individual EGMs through network connections, network identifiers, or direct wired connections to specific ports of the central controller **602**.

Using these plurality of locations, the central controller **602** determines **910** the relative locations of the plurality of EGMs **300** in relation to each other. The central controller **602** determines **910** which EGMs **300** are adjacent to each other and which direction each EGM **300** is in relation to the other EGMs **300**.

In the exemplary embodiment, the central controller **602** determines **915** an animation to display on the plurality of EGMs **300**. As described herein, the animation may be related to gameplay of the EGMs **300**, may be advertising provided by a remote server **102** (shown in FIG. **1**), and/or progressive jackpot information provided by the progressive system server **112** (shown in FIG. **1**). The central controller **602** divides **920** the animation into a plurality of sections based on the plurality of relative locations of the plurality of displays of the plurality of EGMs **300**. The central controller **602** determines which portions or sections of the animation to display on which display screen of which EGM **300**.

In the exemplary embodiment, the central controller **602** generates **925** a plurality of instructions for displaying the animation on the plurality of backgrounds of the plurality of displays of the EGMs **300**. In the exemplary embodiment, the central controller **602** generates **925** the instructions to allow the each of the EGMs **300** to display its portion of the animation. This includes instructions for ensuring that the displays of the various EGMs **300** are synced, so that the imagery may be displayed simultaneously and appear seamless to the observer. The central controller **602** transmits **930** the corresponding plurality of instructions to each of the plurality of EGMs **300**, where the instructions instruct the EGM **300** on what to display on the display screen of the EGM **300**.

In some embodiments, the game display areas **308** (shown in FIG. **3**) are unaffected by the instructions for the display of the animation. In some embodiments, each EGM **300** includes a local controller **606** (shown in FIG. **6**), where the central controller **602** is in communication with the local controller **606**. The local controller **606** then uses the instructions to control its display **608** (shown in FIG. **6**). In some embodiments, the central controller **602** is remote from the plurality of EGMs **300**. In other embodiments, the central controller **602** is positioned adjacent or near to the EGMs **300** that it controls.

In some embodiments, the local controller **606** executes the wagering game on the game display area **308** of the corresponding electronic gaming machine **300**. In these embodiments, the central controller **602** instructs the plurality of local controllers **606** on the background and the animation to be displayed. In other embodiments, the central controller **602** executes the wagering game for each of the plurality of electronic gaming machines **300**.

FIG. **10** is a top view of the individual EGM **300** shown in FIG. **3**. FIG. **11** is a front view of the individual EGM **300** shown in FIG. **3**. FIG. **12** is a side view of the individual EGM **300** shown in FIG. **3**. FIG. **13** is perspective view of the connected EGMs **300** in configuration **400** shown in FIG. **4**. FIG. **14** is a top view of the connected EGMs **300** in configuration **400** shown in FIG. **4**. FIG. **15** is a side view of the connected EGMs **300** in configuration **400** shown in FIG. **4**. FIG. **16** is a top view of the connected EGMs **300** in configuration **500** shown in FIG. **5**. FIG. **17** is a front view of the connected EGMs **300** in configuration **500** shown in FIG. **5**. FIG. **18** is a top view of the connected EGMs **300** in configuration **800** shown in FIG. **8**. FIG. **19** is a front view of the connected EGMs **300** in configuration **800** shown in FIG. **8**. FIG. **20** is a side view of the connected EGMs **300** in configuration **800** shown in FIG. **8**.

FIG. **21** is a perspective view of a single EGM **300** including a stepper reel assembly **2100**. FIG. **22** is a top view of the single EGM **300** with the stepper reel assembly **2100**. FIG. **23** is a side view of the single EGM **300** with the stepper reel assembly **2100**. FIG. **24** is a perspective view of connected EGMs **300** in configuration **400** with stepper reel assemblies **2100**. FIG. **25** is front view of the connected EGMs **300** in configuration **400** with stepper reel assemblies **2100**. FIG. **26** is a perspective view of connected EGMs **300** in configuration **800** with stepper reel assemblies **2100**. As shown in FIGS. **21-26**, instead of being a part of a display screen, such as through picture-in-picture, the game display area **308** is a stepper reel assembly **2100** that is a cut-out from display screen **306**. In these embodiments, the game display area **308** may comprise a flat surface, such as glass. Behind the flat surface are situated stepper (mechanical) reels **2100** for playing the wagering game. In these embodiments, the game display area **308** would be detachable for servicing, such as releasing with a latch situated below. In some embodiments, the game display area **308** and stepper reels **2100** are placed in a recess in the display screen **306** that includes drawer slides for servicing. In these embodiments, the display of the background and the animation **310** would be unaffected by the cut-out and game display area **308**.

A computer, controller, or server, such as those described herein, includes at least one processor or processing unit and a system memory. The computer, controller, or server typically has at least some form of computer readable non-transitory media. As used herein, the terms "processor" and "computer" and related terms, e.g., "processing device", "computing device", and "controller" are not limited to just those integrated circuits referred to in the art as a computer, but broadly refers to a microcontroller, a microcomputer, a programmable logic controller (PLC), an application specific integrated circuit, and other programmable circuits "configured to" carry out programmable instructions, and these terms are used interchangeably herein. In the embodiments described herein, memory may include, but is not limited to, a computer-readable medium or computer storage media, volatile and nonvolatile media, removable and non-removable media implemented in any method or technology for storage of information such as computer readable instructions, data structures, program modules, or other data. Such memory includes a random access memory (RAM), computer storage media, communication media, and a computer-readable non-volatile medium, such as flash memory. Alternatively, a floppy disk, a compact disc-read only memory (CD-ROM), a magneto-optical disk (MOD), and/or a digital versatile disc (DVD) may also be used. Also, in the embodiments described herein, additional input channels may be, but are not limited to, computer peripherals associated with an operator interface such as a mouse and a keyboard. Alternatively, other computer peripherals may also be used that may include, for example, but not be limited to, a scanner. Furthermore, in the exemplary embodiment, additional output channels may include, but not be limited to, an operator interface monitor.

As indicated above, the process may be embodied in computer software. The computer software could be supplied in a number of ways, for example on a tangible, non-transitory, computer readable storage medium, such as on any nonvolatile memory device (e.g. an EEPROM). Further, different parts of the computer software can be executed by different devices, such as, for example, in a client-server relationship. Persons skilled in the art will

appreciate that computer software provides a series of instructions executable by the processor.

While the invention has been described with respect to the figures, it will be appreciated that many modifications and changes may be made by those skilled in the art without departing from the spirit of the invention. Any variation and derivation from the above description and figures are included in the scope of the present invention as defined by the claims.

What is claimed is:

1. An electronic gaming system comprising:

a plurality of electronic gaming devices;

a plurality of display devices, wherein each display device of the plurality of display devices is coupled to at least one electronic gaming device of the plurality of electronic gaming devices; and

at least one processor in communication with the plurality of electronic gaming devices and the plurality of display devices, wherein the at least one processor is configured to execute instructions that cause the at least one processor to:

based upon detecting a trigger condition, determine an animation to display on at least a subset of the plurality of display devices; and

control display of the animation on at least the subset of the plurality of display devices.

2. The electronic gaming system of claim **1**, wherein the instructions further cause the at least one processor to detect the trigger condition, wherein the trigger condition is associated with game play of an electronic game at at least one electronic gaming device of the plurality of electronic gaming devices.

3. The electronic gaming system of claim **1**, wherein the instructions further cause the at least one processor to detect the trigger condition, wherein the trigger condition comprises receipt of advertising data, and wherein the animation is associated with the advertising data.

4. The electronic gaming system of claim **3**, wherein the advertising data is associated with at least one player account of at least one player playing at at least one electronic gaming device of the plurality of electronic gaming devices.

5. The electronic gaming system of claim **1**, wherein the instructions further cause the at least one processor to detect the trigger condition, wherein the trigger condition comprises receipt of promotional data, and wherein the animation is associated with the promotional data.

6. The electronic gaming system of claim **1**, wherein each display device of the plurality of display devices is positioned adjacent to at least one different display device of the plurality of display devices.

7. The electronic gaming system of claim **1**, wherein at least one display device of the plurality of display devices includes a background area and a game display area.

8. The electronic gaming system of claim **7**, wherein the instructions further cause the at least on processor to control display of the animation such that the animation appears in the background area and not the game display area.

9. The electronic gaming system of claim **7**, wherein the instructions further cause the at least one processor to control display of the animation in the background area and a different at least one processor executes an electronic game that is displayed in the game display area.

10. The electronic gaming system of claim **1**, wherein the instructions further cause the at least one processor to control the animation to travel across each display device of the subset of display devices.

11. The electronic gaming system of claim **1**, wherein the at least one processor is included in at least one electronic gaming device of the plurality of electronic gaming devices.

12. The electronic gaming system of claim **1**, wherein the at least one processor is included in an electronic gaming server.

13. At least one non-transitory computer-readable storage medium with instructions stored thereon that, in response to execution by at least one processor, cause the at least one processor to:

based upon detecting a trigger condition, determine an animation to display on at least one display device of a plurality of display devices, wherein the at least one processor is in communication with the at least one display device and a plurality of electronic gaming devices, and wherein the at least one display device is coupled to at least one electronic gaming device of the plurality of electronic gaming devices; and

control display of the animation on the at least one display device.

14. The at least one non-transitory computer-readable storage medium of claim **13**, wherein the instructions further cause the at least one processor to detect the trigger condition, wherein the trigger condition comprises at least one of i) being associated with game play of an electronic game at at least one electronic gaming device of the plurality of gaming devices, ii) receipt of advertising data, or iii) receipt of promotional data.

15. The at least one non-transitory computer-readable storage medium of claim **13**, wherein the at least one display device comprises a background area and a game display area, and wherein the instructions further cause the at least one processor to control display of the animation such that the animation appears in the background area and not the game display area.

16. The at least one non-transitory computer-readable storage medium of claim **13**, wherein the instructions further cause the at least one processor to control the animation to travel across each display device of the plurality of display devices.

17. A method of electronic gaming implemented by at least one processor in communication with at least one memory, a plurality of electronic gaming devices, and a plurality of display devices, the method comprising:

in response to detecting a trigger condition, determining an animation to display on at least one display device of the plurality of display devices, wherein the at least one display device is coupled to at least one electronic gaming device of the plurality of electronic gaming devices; and

controlling display of the animation on the at least one display device.

18. The method of claim **17**, further comprising detecting the trigger condition, wherein the trigger condition comprises at least one of i) being associated with game play of an electronic game at at least one electronic gaming device of the plurality of electronic gaming devices, ii) receipt of advertising data, or iii) receipt of promotional data.

19. The method of claim **17**, wherein the at least one display device comprises a background area and a game display area, and wherein the method further comprises controlling display of the animation such that the animation appears in the background area and not the game display area.

20. The method of claim 18, further comprising controlling the animation to travel across each display device of the plurality of display devices.

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